

Chapter 4

ENVIRONMENTAL CONSEQUENCES

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INTRODUCTION

Chapter 4 discusses the environmental consequences of the five alternatives described in Chapter 2. The Lower Gila South Resource Management Plan/Environmental Impact Statement (RMP/EIS) interdisciplinary team determined that none of the alternatives would significantly impact geology, air quality, topography, or climate. The team also determined that impacts to protected and sensitive plant species are difficult to define because of a lack of site-specific project information. Therefore impacts on protected plants will not be analyzed in this chapter. These plant species are protected by laws and regulations and will be examined in future site-specific environmental assessments.

Management actions will be analyzed in terms of their short- and long-term impacts to the environment. The analysis is designed to provide an overview of the direct or cumulative impacts of the alternatives on each resource and on the RMP/EIS area as a whole. The analysis addresses the impacts associated with particular management actions to resolve the following four issues: rangeland management, wilderness, land tenure, and utility corridors. Site-specific environmental assessments will be performed prior to approval of all projects.

GENERAL ASSUMPTIONS FOR ANALYSIS

In order to analyze the impacts from the management actions of each alternative it was necessary to make general and specific assumptions for the issues.

1. BLM will have the funding and work force to implement and supervise the selected alternative.
2. Impacts are direct unless otherwise noted.
3. Impacts will be monitored and management adjusted as necessary, based on new data from evaluation and monitoring procedures.
4. Short-term impacts occur within five years and long-term impacts occur from five to 25 years after implementation of the plan.
5. All impacts are long-term unless otherwise stated.
6. Environmental assessments (including categorical exclusions) will be conducted prior to implementing any activity plans.

SPECIFIC ASSUMPTIONS

Rangeland Management

1. Adjustments in livestock numbers would be based on data gathered from the rangeland monitoring program in coordination and consultation with the livestock operator and other affected groups.
2. Projected increases in available livestock forage are based on improved livestock distribution which would result from new rangeland developments.
3. Prior to the construction of specific range developments a benefit/cost analysis would be completed to determine the usefulness and feasibility of the developments.
4. Allotment Management Plans (AMPs) may be developed if monitoring evaluations determine the need for activity plans.

Wilderness

1. Wilderness impact conclusions are based on reasonable probabilities and do not necessarily represent a worst case situation.
2. WSAs will be managed under BLM's Interim Management Policy until either designated wilderness or released by Congress.
3. Lands recommended as preliminarily suitable for wilderness preservation will undergo a U.S. Geological Survey/Bureau of Mines (USGS/BM) mineral survey, the results of which will be received before a final recommendation concerning wilderness suitability is forwarded to the President.
4. Lands recommended as nonsuitable for wilderness preservation will be released from wilderness review by Congress.
5. If an area is designated wilderness, the Wilderness Management Policy will be used as a guide for those activities that are permissible. A wilderness management plan will be developed within two years after a WSA is designated wilderness.
6. Any area designated wilderness will be withdrawn from all forms of appropriation under the mining laws as of the date of designation, but would still be subject to valid existing rights.

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7. All state or private land inholdings or nonfederal minerals within an area designated wilderness may be acquired by BLM through purchase or exchange if the state or private land owners agree to the acquisition. BLM must allow access to such inholdings or minerals, but can regulate routes and modes of access to reduce adverse environmental impacts.
8. BLM will manage designated wilderness areas to meet visual resource management Class I objectives, while considering valid existing rights.
9. BLM will not recommend reclassification of air quality standards for wilderness areas from the existing Class II to the more restrictive Class I. Air quality classifications are the responsibility of the state.
10. Livestock grazing in wilderness areas will be maintained at present levels unless adjusted for reasons prescribed through range management.
11. Range, wildlife, and other facilities installed or maintained by customary methods may be allowed when site-specific environmental assessment shows wilderness resources will not be impaired.

Wildlife

It is assumed that BLM's land disposal proposals will not include land needed for:

1. management of habitat for federally listed threatened and endangered species or state-listed threatened species, including Gila River riparian habitat which supports: Yuma clapper rail, osprey, great and snowy egret, and black-crowned night heron;
2. sonoran pronghorn habitat which lies west of State Route 85; and
3. crucial desert bighorn sheep habitat, crucial desert tortoise habitat, land needed for space requirements of bighorn sheep or land which if developed would block important sheep migration routes.

Soils and Water

1. The ecological condition and trend of the rangeland is an indicator of condition and trend of the associated watershed.
2. Demand for more water will continue to grow with the economy of the region, which will increase the need to protect the quality and quantity of the resource for all uses. BLM would stabilize the 1,500 acres of desert pavement soils currently in a severe erosion class as funding becomes available.
3. Floodplain management and protection of wetlands will continue in accordance with Executive Orders 11988 and 11990 and Bureau Manuals 6740 and 7260.

4. Changes in water quality of runoff are proportional to the changes in erosion and runoff (water quality refers principally to sediment production).
5. Water rights necessary for protecting the Bureau's uses and needs of water for public land management purposes are secure under state law and administrative procedures.

Minerals and Energy

None of the proposals for rangeland management and utility corridor issues would impact the minerals program in the RMP/EIS area. Therefore, only the impacts from the wilderness and land tenure issues will be further discussed in this analysis.

Ranch Economics

The ranch economics section assumes that ranchers will stock cattle up to their authorized grazing preference and all figures given in the analysis are based on authorized grazing preference numbers.

PROPOSED ACTION

Impacts on Rangeland Management

The number of livestock or season of use would not be altered on any of the Maintain or Custodial allotments (60,524 AUMs), thus causing no significant short-term impacts to livestock operations in the Lower Gila South RMP/EIS area. Rangeland specialists would evaluate rangeland condition and trend studies at the end of up to a five-year monitoring phase. The results of rangeland monitoring would help determine if grazing adjustments would be needed to meet key species' physiological requirements or if downward trends have reversed on allotments showing downward trends in rangeland condition. All adjustments would be approved only when compatible with other resources.

The construction of new rangeland developments (Table 2-1) would improve livestock distribution on 14 allotments involving 1,161,157 public acres. These developments would reduce livestock stress, eliminating the need to trail long distances to and from water sources. Improved livestock distribution would also increase the availability of livestock forage which may result in an increase of approximately 1,376 animal unit months (AUMs) in the long term (see Appendix 11) and provide for the improvement of areas now displaying downward trends but that have potential to respond to changes in grazing management.

TABLE 4-1
 PERCENTAGES OF ALLOTMENTS WITHIN WSAS BY ALTERNATIVE
 Bureau of Land Management, Phoenix District, Arizona

WSAs Allotments	Allotment Designation*	Proposed Action	No Action/ Resource Production	Resource Protection	Environmental Protection
New Water Mountains					
Crowder-Weisser	P-E	10	0	10	17
Little Horn Mountains West					
Crowder-Weisser	P-E	0	0	0	3
Eagle Tail	P-E	0	0	0	2
Ranegras Plain	P-E	0	0	0	2
Little Horn Mountains					
Crowder-Weisser	P-E	0	0	0	3
Eagle Tail	P-E	0	0	25	30
Ranegras Plain	P-E	0	0	3	30
Eagletail Mountains					
Eagle Tail	P-E	37	0	37	56
Ranegras Plain	P-E	1	0	1	5
Clem	P-E	0	0	0	2
East Clanton Hills					
Eagle Tail	P-E	0	0	0	6
Palomas	E	0	0	0	23
Face Mountain					
Amavisca	E	0	0	34	34
Mariani	E	0	0	13	14
Gable-Ming	P-E	0	0	13	14
Signal Mountain					
Gable-Ming	P-E	0	0	0	17
Woolsey Peak					
Gable-Ming	P-E	11	0	11	11
Gila River Community	E	52	0	52	57
Hazen-Sheppard	E	0	0	0	77
Dendora Valley	E	19	0	19	19
Jagow Kreager	E	34	0	34	34
North Maricopa Mountains					
Conley	P-E	0	0	7	7
Hazen	P-E	0	0	30	41
Beloat	P-E	0	0	17	21
Bighorn	P-E	0	0	11	14
South Maricopa Mountains					
Conley	P-E	0	0	0	22
Bighorn	P-E	0	0	0	26
Lower Vekol	P-E	0	0	0	43
Butterfield Stage Memorial					
Conley	P-E	0	0	0	3
Bighorn	P-E	0	0	0	4
Table Top Mountains					
Conley	P-E	50	0	50	50
Bighorn	P-E	19	0	19	23
Lower Vekol	P-E	23	0	23	41

* E = Ephemeral; P-E = Perennial-Ephemeral

SOURCE: Phoenix District files.

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This proposal identifies four areas (190,391 acres) as suitable for wilderness designation. Portions of seven perennial-ephemeral allotments and four ephemeral allotments overlap into the wilderness study area (WSA) boundaries (Table 4-1). Any rangeland developments proposed within wilderness boundaries must meet the criteria in BLM's *Wilderness Management Policy*. Construction of new rangeland developments is permissible when it is determined to be necessary for the purpose of effective management of the rangeland. To reduce the visual impacts, new rangeland developments in WSAs may have to be built and maintained with natural materials. Construction and maintenance cost would thus increase, depending on the type of development and its location.

Conclusion. No adverse impacts to livestock operators would occur from implementing the *Proposed Action*. No livestock adjustments are proposed initially until rangeland monitoring studies are completed. Construction of new rangeland developments would allow for an increase of 1,376 AUMs in the long term. Wilderness designation would not significantly impact those portions of seven perennial-ephemeral and four ephemeral allotments that overlap the four WSAs.

Impacts on Vegetation

Changes in rangeland condition vary over time, depending on trend, site potential, climatic conditions, natural seed sources, and the effectiveness of rangeland developments.

Currently only 10 percent or 154,500 acres of the perennial-ephemeral allotments are in poor condition (Appendix 15). These are areas that have been historically grazed and represent areas surrounding existing water sources.

Thirteen perennial-ephemeral allotments displaying upward apparent trends in rangeland condition (Appendix 15) would continue to improve under present grazing management until their potential is reached. Rates of improvement would depend on trend, site potential, climatic conditions, natural seed sources, and the effectiveness of rangeland developments. New rangeland developments on 14 perennial-ephemeral allotments (Table 2-1) would improve livestock distribution and reduce grazing pressure on areas currently exhibiting poor or downward apparent trends (five percent or 69,600 acres) in rangeland condition in the long term.

Rangeland condition on the 18 ephemeral allotments (Custodial) would not change under this alternative in the short or long term. These allotments are grazed only during years when ephemeral forage has the potential to become available.

Conclusion. No significant impacts to vegetation would result from implementing the *Proposed Action*. Allotments displaying poor rangeland conditions and downward apparent trends would improve through the construction of new rangeland developments.

Impacts on Wilderness Values

Wilderness designation of 24,200 acres of the New Water Mountains WSA, 70,791 acres of the Eagletail Mountains WSA, 61,000 acres of the Woolsey Peak WSA, and 34,400 acres of the Table Top Mountains WSA would ensure the protection and preservation of their wilderness and associated resource values.

Wilderness designation of these four areas would have short- and especially long-term beneficial impacts on their wilderness and associated resource values by providing protection from most surface-disturbing activities. Withdrawal from mineral exploration and development, closure to motorized vehicles, and prohibition of new rights-of-way, disposal or other land actions would preserve their natural character. Opportunities for outstanding solitude and primitive recreation experiences in a natural setting would be maintained and protected for nonmotorized recreationists. Hiking, backpacking, camping, walk-in hunting, sightseeing, and nature study would be the primary activities benefited by wilderness designation.

Protection of wilderness values in these four areas would also benefit supplemental resource values present. The quality of wildlife habitat, cultural resources, soils, vegetation, protected plant species, and scenic and visual resources would be maintained. Long-term benefits would be provided by preserving lands to permit natural ecological processes to continue with little or no human interference.

Crucial desert bighorn sheep habitat would be maintained in all four areas, while crucial desert tortoise habitat would be preserved in the New Water Mountains and Table Top Mountains. Desert pavement soils, vegetation, and protected plants found in all four areas would be protected by the restriction or elimination of mining and motorized vehicle use. Two significant Sonoran Desert botanical areas, located in the Table Top and Eagletail Mountains WSAs, would be enclosed by wilderness, thus ensuring their continued long-term value for nature study and scientific and educational use. Scenic and visual values would be preserved by a visual resource management (VRM) Class I designation. Class I objectives and management requirements allow little to no change in the natural landscape.

Designation of the four areas would add to the diversity of the National Wilderness Preservation System (NWPS) in Arizona. Wilderness would provide increased solitude and primitive recreation opportunities for residents of five standard metropolitan statistical areas (SMSAs). The

geographic distribution of wilderness within Arizona would also be enhanced by the placement of four areas in southwest Arizona. The Organ Pipe Wilderness (National Park Service) is the only wilderness presently in this area.

Designation of the four areas as wilderness would not add new ecosystems to the NWPS but would contribute additional areas and acreage to two American Desert province ecosystem types: paloverde-cactus shrub and creosotebush-bursage.

All four areas analyzed for wilderness designation are considered manageable as wilderness over the long term. Mining activities could affect wilderness values, but mining would be restricted to valid claims with valid existing rights at the time of wilderness designation. ORV use might occur in some portions of the Eagletail Mountains and Table Top Mountains WSAs due to the absence of terrain or plant features along some boundaries to preclude such activity. The impacts of such uses are considered insignificant to wilderness values over the long term.

Parcels of nonfederal surface and mineral inholdings lie within the suitable boundary of the Eagletail Mountains. If these lands were developed in the future, it would have adverse effects on surrounding wilderness values. Another potential impact exists because access must be provided. Acquisition through land exchange of 2,643 acres of state surface and mineral lands and 561 acres of state mineral rights within the Eagletail Mountains WSA will facilitate wilderness management of the area and enhance botanical, wildlife, wilderness, and related multiple resource values. Acquisition of the above acreage would allow such parcels to be incorporated into the Eagletail Mountains wilderness proposal.

Nondesignation and a return to multiple use management of eight entire WSAs (Little Horn Mountains West, Little Horn Mountains, East Clanton Hills, Face Mountain, Signal Mountain, North Maricopa Mountains, South Maricopa Mountains, and the Butterfield Stage Memorial) and portions of four WSAs (New Water Mountains, Eagletail Mountains, Woolsey Peak, and Table Top Mountains) could result in the loss or damage of their wilderness values over the long term. Land uses detrimental to wilderness and supplemental values could be permitted, including mineral and energy development, rights-of-way and other land actions, and motorized vehicle use.

Mineral exploration and development could occur in all these areas as they would remain open to mineral entry. Existing and future mining claims and leases would not be subject to wilderness constraints. Surface disturbances caused by road construction, exploration, and assessment work are possible. If development occurred, there could be adverse long-term impacts to wilderness resources.

Motorized vehicle use, new rights-of-way, and other land actions could diminish the natural character of nondesignated areas. New access roads could allow vehicles into previously inaccessible areas. Over the long term utility lines could be constructed across portions of

the New Water Mountains, Little Horn Mountains, Eagletail Mountains, Face Mountains, Signal Mountains, Butterfield Stage Memorial, and South Maricopa Mountains. Outstanding opportunities for solitude and primitive recreation experiences could be reduced or permanently lost in these areas.

The areas not designated wilderness will revert to VRM Class II, III, or IV visual management protection objectives. These VRM classes pose fewer restrictions on layout, design, and construction of proposed developments than the Class I objectives required by wilderness. Contrasts in the landscape resulting from developments will be more noticeable since projects affecting the scenery might be allowed. Small scale projects for livestock and wildlife could slightly impair the wilderness values because they would be installed without wilderness constraints on placement and design.

The ability of nondesignated areas to contribute to the present diversity of the NWPS would be lost. Additional opportunities for solitude and primitive recreation for residents of five SMSAs would be forgone by nondesignation of these areas as well.

Conclusion. The eight entire WSAs and portions of four others not analyzed as suitable for wilderness designation (431,540 acres) have a moderate potential for damage or loss of natural values if not designated wilderness, primarily a result of mineral development, motorized vehicle use, and rights-of-way development. These areas' natural character, opportunities for solitude and primitive recreation, and special features could be damaged or lost over the long term.

For the portions of four WSAs (190,391 acres) analyzed suitable for wilderness designation (New Water Mountains, Eagletail Mountains, Woolsey Peak, and Table Top Mountains) there would be short- and long-term beneficial impacts to the wilderness resource by preserving the natural values, outstanding opportunities for solitude and primitive recreation, supplemental values, and by enhancing the geographic diversity of the NWPS in Arizona.

Impacts on Land Uses

Conclusion. The *Proposed Action* would not conflict with any current land uses. However, designation of portions of four WSAs (New Water Mountains, Eagletail Mountains, Woolsey Peak, and Table Top Mountains—190,391 acres) would preclude some future land uses from these areas (rights-of-way for roads, powerlines, pipelines, and communication sites).

The *Proposed Action* would benefit the lands program by designating utility corridors and by allowing the BLM and State of Arizona to pursue the land tenure adjustments needed to develop a more manageable ownership pattern.

Impacts on Wildlife

Rangeland Management Issue

Mule Deer. The *Proposed Action* would maintain existing levels of yearlong grazing. The major conflict under existing circumstances is between cattle and mule deer in desert washes which interlace creosotebush-bursage habitat. Cattle congregate in washes for shade and consume most of the quality forage growing along the banks. Deer move to areas of low livestock use, usually in the foothills of major mountain groups. Ongoing conflict between cattle and mule deer for forage represents a long-term negative impact, especially on the following allotments where use on browse is high: Conley, Beloat, Cameron, Lower Vekol, and Bighorn (Fredlake and Lucas, 1982). Under the proposed action long-term monitoring will be instituted in areas of mule deer and livestock competition. Use adjustment may be necessary to reduce or eliminate forage conflict, hence long-term beneficial impacts may occur.

Ten wells and seven reservoirs are proposed for development under the *Proposed Action*. These would provide additional watering points for mule deer and hence provide a marginal benefit. In order for wells to be beneficial, corral fences around troughs must allow deer (especially fawns) easy access, and water must be available during the hot summer months.

Reservoirs in the RMP/EIS area, with few exceptions, dry up in summer months and are not significantly valuable for big game. Cattle congregate in large numbers around waters, resulting in overuse of quality browse (false mesquite, jojoba, ratany, janusia) and trace perennial grasses (bush muhly, slim tridens, three awn). This area of overuse may extend up to a mile from the water source and represents a negative impact on the forage base of big game.

Desert Bighorn Sheep. Forage conflicts occur between cattle and desert bighorn sheep when large numbers of steers are released under ephemeral permits in winter seasons. Steers, unfamiliar with terrain, can drift into bighorn sheep habitat and locate around important bighorn waterholes, thereby competing with sheep for forage and water or transmitting disease.

Bighorn in the RMP/EIS area have been exposed to viral diseases such as blue tongue, epizootic hemorrhagic disease, contagious ecthema, and para-influenza III (DeVoss, 1984). These diseases are transmitted by biting midge flies or direct contact from cattle to bighorn; the more cattle grazing on an allotment with bighorn (even on an ephemeral basis), the greater the likelihood that bighorns will be exposed to disease (Post, 1976). Viral diseases lie dormant in the blood stream and become active when sheep are submitted to undue environmental stress (drought, harassment, competition with cattle), and result in severe mortality in a short period of time. Potential for

an outbreak of disease due to livestock use would continue to have a long-term adverse impact to sheep populations.

The following allotments have the potential for bighorn-cattle disease transmission:

Crowder-Weisser	Eagle Tail	Ranegrass Plain
Clem	Gable-Ming	Jagow Kreager
Layton	Gila River	Dendora Valley
Artex	Community	Gila Bend
Mumme	Hazen Sheppard	Indians
Conley	Powers Butte	Hazen
Childs	Beloat	Cameron
Vekol	Bighorn	Lower Vekol
Kirian	South Vekol	Table Top

Livestock wells, not used by bighorn sheep to any extent, would not be beneficial. If placed within one to two miles of bighorn habitat, livestock wells could increase bighorn/cattle contact and the likelihood of disease transmission to bighorn. This increased contact would be a negative impact.

Proposed fencing could become a significant barrier to migration if constructed perpendicular to routes commonly traveled by bighorn sheep between mountain ranges (Helvie, 1971). Bighorn sheep tend to panic when crossing through barbed wire and can entangle their curved horns, severely lacerating themselves. Unlike deer, bighorns rarely jump fences but try instead to crawl under the bottom strand or step between intermediate strands. There are no particularly good fence designs that deter cattle and allow safe crossing by bighorns.

Overall, long-term impacts of range improvements to desert bighorn sheep would be adverse.

Sonoran Pronghorn. Pronghorn and cattle compete for habitat and perennial forage on the Cameron allotment. At current grazing levels pronghorn habitat value will continue to decline. Under the *Proposed Action* long-term monitoring studies will be instituted on the Cameron allotment. Use adjustment may be necessary to reduce or eliminate pronghorn and cattle forage conflict, hence, long-term positive impact may occur.

Sonoran pronghorn will not be affected by rangeland developments recommended in the *Proposed Action*. Pronghorn have not been observed drinking free water and appear to satisfy their requirements in the moisture content of their forage (Arizona Game and Fish Department, 1981). If placed in pronghorn habitat in an area of low livestock use, wells and reservoirs would draw in more cattle and significant forage competition could result.

Javelina. Javelina do not compete significantly with cattle for forage and hence would not be affected by the *Proposed Action*. Two wells proposed for Table Top and Bighorn allotments could slightly benefit javelina if constructed so that this species would have unimpeded access to water, and if the water were available yearlong. This would entail building troughs less than one foot high so young javelina as well as adults could drink.

Desert Tortoise. Desert tortoise primarily inhabit major mountain ranges, foothills, and bajadas. When tortoise awake from hibernation, they rely on winter-spring annuals to provide energy for reproduction, especially when perennial forage is scarce. Drought and heavy livestock use lessen available annuals and threaten tortoise reproduction (Berry, 1978).

When annuals are not present in the spring, perennial grasses and forbs become an extremely important source of forage, and competition from cattle becomes even more critical. Competition between cattle and tortoise is most evident around the fringes of mountains and less evident on steep slopes. No short-term improvement of tortoise habitat is expected. Monitoring studies will be instituted in areas of tortoise and livestock competition. Use adjustment may be necessary to reduce or eliminate forage conflict, hence long-term beneficial impacts may occur.

The following allotments have a high potential for cattle/tortoise forage conflicts:

Beloat	Hazen	Conley
Bighorn	Kirian	Vekol
Gable-Ming	Eagle Tail	Crowder-Weisser
Palomas		

Wells and reservoirs, if constructed in desert tortoise habitat, would result in an increase in forage use by cattle and a decrease in forage available for tortoise. This could cause a long-term decline in tortoise habitat in localized areas and would be a significant long-term adverse impact.

Riparian Habitat. Cattle use riparian habitat along the Gila River extensively, browsing on mesquite, willow, and cottonwood trees. Cottonwood reproduction is primarily limited by fluctuating water tables, vegetation clearing, floods, fire, and salt accumulation in the soil, but cattle grazing is also a factor. Cattle do not appear to inhibit establishment of willows and aid in mesquite reproduction, consuming seed pods and depositing scarified seeds in dung. Mesquite seeds, supplied with a rich supply of fertilizer, will sprout and grow, ultimately providing valuable wildlife cover.

Cottonwood trees would probably become slightly more numerous along the Gila River channel if stocking rates were reduced as a result of monitoring studies (Duff, 1978; Platts, 1979; Rickard and Cushings, 1982). Increase in cottonwood trees would provide added foraging areas and nesting areas for nongame birds, nesting habitat for sharp shinned hawks, Cooper's hawks, and other raptors and roosting habitat for egrets and herons (Anderson, Engel-Wilson, Wells, Ohmart, 1977). If rangeland monitoring studies indicate that a reduction in livestock use is necessary, reduced livestock use would result in a slightly beneficial impact to wildlife.

Game Birds and Small Game. The construction of seven livestock wells would result in some benefit to dove and quail by providing additional watering points. Open top storage tanks, and troughs (unless equipped with

escape ramps) can cause small game drownings, however, and no evidence indicates that waters themselves result in significant ulation increases in quail or doves.

Reservoirs could provide long-term benefits to quail and doves. Mesquite trees establish themselves around the shore regardless of grazing intensity and grow more rapidly than those in the surrounding desert. Excellent dove nesting habitat and quail escape cover is the net result. Cottontail rabbits also benefit from the thorny escape cover. Overall, long-term impacts to small game would be slightly positive.

Shorebirds and Waterfowl. Reservoirs provide some benefit for shorebirds and waterfowl by serving as resting points during seasonal migration; however, few reservoirs hold water yearlong and so do not provide waterfowl nesting habitat. Overall, long-term impacts to shorebirds and waterfowl would be slightly positive.

Nongame in Vekol Valley Grassland. Due to long-term concentrations of livestock in Vekol Valley grassland ground cover has been reduced and soil erosion has increased. This is a negative long-term impact to the habitat of amphibian Luna in the area. If monitoring studies indicate a need for adjusting livestock use in the area then significant positive impacts to amphibian habitat will result.

Conclusion. Table 4-2 summarizes the long-term impacts to wildlife from rangeland management under the five alternatives. Rangeland monitoring will be instituted in allotments where wildlife and livestock conflicts occur and, ultimately, use adjustments will be made to reduce or eliminate resource conflicts.

Wilderness Issue

State-Listed Threatened Species (Bighorn Sheep and Desert Tortoise). Table 4-3 shows acres of crucial bighorn habitat and crucial tortoise habitat in each WSA and by alternative.

Desert bighorn sheep would benefit by designation of four WSAs in the Lower Gila South RMP/EIS area. Bighorn sheep require large tracts of habitat relatively undisturbed by human activity. Mining is particularly detrimental since it involves blading roads into mountainous areas previously accessible only on foot or horseback. Once constructed, roads become permanent routes for recreationists, miners, or poachers, and desert bighorn sheep habitat quality is severely degraded.

Limiting mining and other human activities would enhance the desert tortoise by preventing piecemeal habitat destruction. Wilderness designation would also afford some protection from overcollection or vandalism.

Other Wildlife Species. The Arizona Game and Fish Department maintains numerous rainwater catchments within the WSAs' boundaries. These facilities provide water for mule deer, quail, dove, nongame birds, rabbit,

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TABLE 4-2
LONG-TERM IMPACTS TO WILDLIFE FROM THE RANGELAND ISSUE BY ALTERNATIVE
Bureau of Land Management, Phoenix District, Arizona

Rangeland Issue Long-Term Impacts	Proposed Action			No Action			Resource Production			Resource Protection			Environmental Protection		
	LM	RD	RM*	LM	RD	RM*	LM	RD	RM*	LM	RD	RM*	LM	RD	RM*
Sonoran Pronghorn	2	-1	2	-3	0	-3	2	-1	2	2	0	2	3	0	2
Desert Bighorn	1	-2	1	-3	0	-3	1	-2	1	1	0	1	2	1	2
Mule Deer	2	0	2	-2	0	-2	2	0	2	2	0	2	3	-1	0
Desert Tortoise	2	-2	2	-2	0	-2	2	-2	2	2	0	2	2	0	2
Riparian Habitat	1	0	1	0	0	0	1	0	1	1	0	1	1	0	0
Waterfowl	0	1	0	0	0	0	0	1	0	0	0	0	0	-1	0
Vekol Valley															
Grassland	2	0	2	-2	0	-2	2	0	2	2	0	2	2	0	2
Small Game	0	1	0	0	0	0	0	1	0	0	0	0	0	-1	0
Javelina	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0

*LM = Level of Grazing Management

RD = Rangeland Developments

RM = Rangeland Monitoring

-3 = Highly significant adverse impact 3 = Highly significant beneficial impacts

-2 = Significant adverse impact 2 = Significant beneficial impact

-1 = Slightly adverse impact 1 = Slightly beneficial impact

0 = Neutral, no impact

SOURCE: Phoenix District files

Note: BLM will initiate monitoring studies in areas where livestock and wildlife conflicts exist.

and predators. Wilderness designation would still allow for periodic maintenance of these existing catchments and hence result in no impact to wildlife. Construction of new catchments within wilderness areas would be analyzed on a case-by-case basis.

TABLE 4-3
ACRES OF HABITAT PROTECTED UNDER THE PROPOSED ACTION
Bureau of Land Management, Phoenix District, Arizona

WSAs	Crucial Desert Bighorn Sheep Habitat*	Crucial Desert Tortoise Habitat**
New Water Mountains	24,120	5,820
Eagletail Mountains	41,950	0
Woolsey Peak	58,240	0
Table Top Mountains	22,780	4,700
TOTAL	147,090	10,520

* Crucial desert bighorn sheep habitat: habitat necessary to maintain current bighorn populations. Population density varies.

** Crucial desert tortoise habitat: habitat with tortoise population densities of 50 tortoise per square mile or greater. All WSAs contain tortoise populations.

SOURCE: Phoenix District files

Conclusion. Designation of four WSAs would benefit desert bighorn sheep and desert tortoise. A total of 147,090 acres of crucial bighorn sheep habitat and 10,520 acres of crucial tortoise habitat would be protected under the *Proposed Action*. Table 4-4 summarizes the relative impacts

TABLE 4-4
IMPACTS TO SPECIES UNDER EACH ALTERNATIVE
Bureau of Land Management, Phoenix District, Arizona

Species	Proposed Action	No Action	Resource Production	Resource Protection	Environmental Protection
Desert Bighorn Sheep	1	-2	-2	2	3
Desert Tortoise	1	-2	-2	2	3

3 = highly beneficial impacts

2 = significant beneficial impacts

1 = slightly beneficial impacts

SOURCE: Phoenix District files

-3 = highly adverse impacts

-2 = significant adverse impacts

-1 = slightly adverse impacts

Land Tenure Issue

Disposal. In order to analyze long-term impacts of disposal of public lands in the Lower Gila South RMP/EIS area it is assumed that tracts identified for disposal eventually would be sold or exchanged and that these lands would ultimately be subject to development for agricultural, residential, or industrial purposes.

Land disposal would result in three types of development: agricultural, industrial, and high- or low-density residential. High-density residential, agricultural, or industrial developments permanently destroy the habitat. Low-density residential development (i.e., houses constructed one-eighth to one-fourth mile apart with native vegetation left somewhat undisturbed) results in the emigration of large game animals from the area. Because of human disturbance, smaller species such as quail, cottontail, grey fox, nongame birds, and desert tortoise experience a drop in population. At least one species, coyote, does not seem to be affected by low-density housing.

Some benefits to wildlife might be gained through the land disposal program by trading isolated parcels of BLM land for valuable wildlife habitat in the state. This impact cannot be fully assessed at this time.

Two sensitive species will be unavoidably affected by disposal action and subsequent development Gila monster and kit fox. The Gila monster is found in all habitats in the Lower Gila South RMP/EIS area. Development of any parcel would result in some loss of habitat for this species. Kit foxes are present in low numbers in the creosote bush-bursage habitat, and land developments would result in unavoidable loss of habitat for this species. Loss of kit fox and Gila monster habitat could be minimized by limiting land disposal to BLM land surrounded by developed land or land on the fringes of development.

Some unavoidable loss of habitat would occur for kit fox and Gila monster under the *Proposed Action*. Habitat loss for other species would be minimal.

Acquisition. Under the *Proposed Action* 8,920 acres of riparian habitat in the Fred J. Weiler Green Belt would be acquired from the State of Arizona or private individuals. These lands would then be protected from clearing for agricultural uses and continue to provide habitat for dove, quail, nongame birds, and endangered or threatened species such as Yuma clapper rail, osprey, great and snowy egret, and black-crowned night heron. This would provide substantial benefits for these species.

Under this alternative, a total of 2,200 acres of crucial desert bighorn sheep habitat would also be acquired by exchange from the state. This acquisition would increase management options for sheep habitat on public lands and benefit that species.

Split Mineral Estate. By acquiring state and private mineral estate underlying BLM lands, more control would be gained over mining activity on those lands. This could be a benefit to wildlife in that certain stipulations could be placed on mining plans of operation to protect or restore wildlife habitat. Site-specific impacts to wildlife habitats in the Lower Gila South RMP/EIS area cannot be further assessed at this time.

Conclusion. Impacts due to land disposal would be slightly adverse. Impacts due to land and mineral acquisition would be beneficial, although the benefit cannot be quantified at this time.

Utility Corridor Issue

Conclusion. The impact of designating corridors along existing routes would be somewhat beneficial for wildlife by limiting future disturbance in other areas. Designating corridors would avoid disrupting habitat and wildlife in new areas.

Impacts on Minerals and Energy

Conclusion. The *Proposed Action* would negatively impact mineral exploration and development in portions of four WSAs (190,391 acres) that are proposed for wilderness designation. Areas designated as wilderness would be closed to mineral entry and mineral leasing. No new prospecting, exploration, or mining would be allowed. A total of 190,391 acres of oil and gas leases and 199 mining claims would be affected. This alternative proposes to drop eight WSAs and portions of four WSAs (417,807 acres) from wilderness study, return these areas to other multiple use management, and allow mineral exploration and development in accordance with the mining regulations (CFR 3802 and 3809). Under multiple use management, exploration and mining are encouraged. Environmental protection is insured by required reclamation. Stipulations insure preservation of all environmental concerns.

Acquisition of 36,845 acres would be beneficial to mining interests because these areas would be open to mineral exploration and development. Acquiring 112,160 acres of state and private mineral estate would be beneficial by consolidating the split surface and mineral estate of lands in the Lower Gila South RMP/EIS area.

Impacts on Soils

Most of the RMP/EIS area's severe erosion areas are in and adjacent to the drainageways and the Gila River that are heavily used by livestock. Proposed soil disturbance projects in areas with high soil-blowing and severe-erosion problems would be evaluated on a case-by-case basis in the environmental assessment process. Mitigating measures would be applied as appropriate.

Conclusion. Soils would not be significantly impacted under the *Proposed Action*. Any other proposed soil disturbance project on the fragile soils would be evaluated using site-specific environmental assessments on a case-by-case basis.

Impacts on Cultural Resources

Rangeland Management Issue

Under the *Proposed Action* inadvertent or indirect impacts primarily from rangeland developments may occur. Rangeland developments may affect cultural resources in the following ways: (1) loss of the spatial relationships between cultural materials and their surroundings; (2) loss of entire site elements such as artifacts, features, or portions of site areas; (3) loss of historical context, especially information on occupation dates and prehistoric environment; and (4) reduction in the cultural resource base after salvage. The nature and degree of these impacts has not been adequately monitored and documented.

A limited study by Roney (1977), however, found that cattle trampling during livestock grazing significantly damages lithic sites and artifacts. In addition, lithic scatters, rock circles, intaglios, rock alignments, and extensive prehistoric trails typically found in desert pavement areas can be destroyed by cattle trampling (BLM, 1982).

Conclusion. Significant direct impacts from the rangeland management issue on cultural resources would be avoided or mitigated since cattle disturbance from range developments constitutes a ground disturbing action. A Class I literature search, as well as a Class III intensive field inspection for significant cultural resources, will be conducted for any ground disturbing action (see Chapter 2, Page 21). Concentrated trampling by livestock would have the greatest effect on sites with surface features and structures, which include most of the sites in the EIS area. The significance of these impacts on cultural resources would vary according to the location and condition of the site.

Wilderness Management Issue

Wilderness designation of portions of four WSAs (190,391 acres) would generally benefit cultural resources in these WSAs by decreasing vandalism, road/utility construction, ORV use, and mining. Table 4-5 lists a number of agents of site deterioration and the probable effect of wilderness designation compared to the existing situation for each type of deterioration.

TABLE 4-5
IMPACTS ON CULTURAL RESOURCES*
Bureau of Land Management, Phoenix District, Arizona

Agent of Deterioration	Existing Situation	Impacts of Wilderness Designation
Erosion	Moderate	No Change/ Low Decrease
Vandalism	Moderate	Moderate Decrease
Livestock Trampling	Low	No Change
Road/Utility Construction	Moderate	High Decrease
ORV Use	Low	High Decrease
Mining	High	Moderate Decrease
Range Developments	Low	Moderate Decrease

* Impacts compared to existing situation:
SOURCE: Phoenix District files, Lower Gila South MSA

All of the direct impacts to cultural resources, except vandalism, can be mitigated. Vandalism would generally increase with an increased number of visitors in the four designated wilderness areas, however, the overall destruction to sites would probably be much less than that associated with development under multiple use management (BLM, 1982).

Table 4-6 summarizes the acres likely to contain cultural resources that would be protected under each alternative.

Approximately 55 percent or 103,818 acres proposed for wilderness designation under this alternative may contain cultural resources which would be beneficially affected by having added protection (see Table 4-6). In addition, one petroglyph site in the Eagletail Mountains, eligible for the National Register of Historic Places, would have added protection, as well as those portions of the Eagletail Mountains having important significance to the Yavapai and Maricopa Indian groups.

Designation of wilderness would limit the potential for surface disturbance and protect cultural resources. Because mining, road construction, and vandalism have caused moderate to high levels of disturbance to known cultural resources, this alternative would be highly beneficial to the protection of these resources. Public education efforts, as part of wilderness management, would tend to enhance visitor appreciation of cultural resources. BLM's Wilderness Management Policy provides for inventorying and monitoring historic or prehistoric sites with structures in wilderness areas. These inventories and monitoring studies would determine if such sites have scientific and socioeconomic uses. This would help fill the existing data gaps in the current knowledge of permanent or semi-permanent historic and prehistoric habitations.

Conclusion. Impacts on cultural resources from the *Proposed Action's* wilderness management issue would be beneficial in general, with added protection for a site eligible to the National Register. Traditional cultural/religious significant areas within the Eagletail Mountains and 103,818 acres with a high probability of containing cultural resources would also have added protection.

Land Tenure Issue

Conclusion. Under this alternative the impacts of management decisions from the land tenure issue on cultural resources would be minimal or nonexistent after all pertinent laws, regulations, and current policies are followed (see Chapter 2). Class I, III, and/or II cultural resource inventories will be conducted prior to the transfer of title of lands, thereby eliminating or reducing adverse impacts to significant cultural properties. Furthermore, cultural resources of National Register significance could be brought under federal protection through land ownership adjustments, thereby bringing consolidated areas of prehistoric and historic use under cultural resource management.

TABLE 4-6
ACRES LIKELY TO CONTAIN CULTURAL RESOURCES
PROTECTED BY WILDERNESS DESIGNATION UNDER EACH ALTERNATIVE*

WSA	Proposed Action	No Action	Resource Production	Resource Protection	Environmental Protection
New Water Mountains	14,050	--	--	14,050	15,330
Little Horn Mountains West	--	--	--	--	7,180
Little Horn Mountains	--	--	--	28,655	31,535
Eagletail Mountains	55,428	--	--	55,428	62,340
East Clanton Hills	--	--	--	--	11,725
Face Mountain	--	--	--	8,800	9,180
Signal Mountain	--	--	--	--	3,490
Woolsey Peak	21,145	--	--	21,145	26,585
North Maricopa Mountains	--	--	--	4,160	17,880
South Maricopa Mountains	--	--	--	--	14,040
Butterfield Stage Memorial	--	--	--	--	4,480
Tabletop Mountains	13,195	--	--	13,195	14,795
TOTAL ACRES	103,818	--	--	145,513	218,560
% OF ACRES LIKELY TO CONTAIN CULTURAL RESOURCES	55%			45%	36%
% OF SENSITIVE ACRES PROTECTED BY ALTERNATIVE	48%			66%	100%

SOURCE: Phoenix District files

Utility Corridors Issue

Future use of 10 corridors (each one-mile-wide) for utility projects and rights-of-way would impact areas which are known to contain cultural and ethnological resources. Several of the utility corridor surveys, as well as BLM Class II and Class III inventories, have recorded a number of significant archaeological sites and Native American cultural/religious areas of significance within the proposed corridor areas.

Impacts on a number of these archaeological sites have been mitigated along several utility corridors for previous projects. Archaeological inventory and mitigation work would eventually be reduced when all corridors have been surveyed and the impacts on all sites mitigated (see Chapter 2).

The proposed utility corridors could impact a number of traditional cultural/religious areas of significance to Native American groups (see Table 4-7). An irreversible and irretrievable impact to these resources would occur if it were determined that other considerations outweighed the value of protecting such areas.

Conclusion. If other management considerations take priority, impacts from the 10 proposed utility corridors could be adverse to primarily six large areas having cultural/religious significance to Native Americans (Table 4-7).

Impacts on Recreation

Conclusion. Under the *Proposed Action* 93.55 miles of vehicle ways, 6.0 miles of roads, and 190,391 acres would be closed to vehicle use (Table 4-8). An estimated increase of 4,650 visitor days/year of recreation use is expected under this alternative.

Impacts on Economic Conditions

This section describes the *Proposed Action's* economic impacts on the RMP/EIS area ranchers and economy of the three-county (Maricopa, Pima, and Yuma) economic study area (ESA). Impacts from expected changes in rancher income, recreational use, and oil and gas lease revenues will be described.

Impacts to RMP/EIS are a ranch operators are analyzed through the use of three representative ranch budgets. Data from these ranch budgets are then used to analyze the impacts to the economy of the ESA. Representative ranch budgets by alternative are shown in Appendix 19. Economic impacts resulting from the *Proposed Action* on the mining industry cannot be quantified in many cases because of a lack of information about the mineral and energy resources.

4 - ENVIRONMENTAL CONSEQUENCES

TABLE 4-7
SIGNIFICANT TRADITIONAL CULTURAL/RELIGIOUS AREAS WHICH MAY BE AFFECTED BY UTILITY CORRIDORS
Bureau of Land Management, Phoenix District, Arizona

Utility Corridors	Significant Traditional Cultural/Religious Areas					
	Maricopa Mountains	Mohawk Mountains	Arlington Quad-Palo Verde Hills So. to Gillespie	Gila Bend & Smurr Quads	Gila Bend Mountains*	Painted Rock Mountains
Interstate 10			X			
Interstate 8		X		X		X
Palo Verde-Devers			X			
Santa Rosa-Gila Bend	X					
El Paso Natural Gas			X			
APS-Interconnect			X		X	
Palo Verde-Kyrene			X			
Liberty-Gila Bend				X		
Native American Tribes That Determined Areas	Pima, Sand Papago, & Maricopa	Pima, Sand Papago & Maricopa	Maricopa	Kavelcadom, San Simon	Yavapai, Maricopa, N. Pima, & Papago	Yavapai, Maricopa, & Papago

*Indicates very high significance.

SOURCE: Phoenix District files

Ranch Budgets

Small Ranch. Under the *Proposed Action* the short- and long-term herd size of the typical small ranch would remain equal to its authorized grazing preference—42 cows. Net revenue (gross revenue minus cash costs) would thus remain at \$3,743. See Table 4-9 for revenue figures for all alternatives.

Because net revenue on the small-size ranch would not be impacted by the *Proposed Action*, the present value of 20 years of net revenue would also not be impacted. See Table 4-10 for the 20-year net revenue figures for all alternatives.

Medium Ranch. Under the *Proposed Action* the herd size of the typical medium-size ranch would remain at its authorized grazing preference level—140 cows. Long-term forage increases, however, would allow the typical medium-size ranch to stock 147 cows, a five percent increase over existing stocking rates. Yearly net revenue would initially remain at \$11,588 but would gradually increase by seven percent to \$12,424 over 20 years. The present value of 20 years of net revenue on the medium-size ranch under present management amounts to \$114,839, whereas such revenues under the *Proposed Action* amount to \$117,890 or a three percent increase.

TABLE 4-8
SURFACE ACRES AND MILES OF VEHICLE ACCESS OPEN OR CLOSED TO ORV USE BY THE WILDERNESS ISSUE
Bureau of Land Management, Phoenix District, Arizona

Alternative	No. of Wilderness Areas Designated	Acres to be Closed to ORV Use	Acres to Remain Open to ORV Use	Miles of Vehicle Ways to be Closed to ORV Use*	Miles of Vehicle Ways to Remain Open to ORV Use*	Miles of Roads to be Closed to ORVs**
Proposed Action	4	190,391	431,540	93.55	272.95	6.00
No Action	0	0	621,931	0.00	366.50	0.00
Resource Production	0	0	621,931	0.00	366.50	0.00
Resource Protection	7	326,551	295,380	170.45	196.05	6.00
Environmental Protection	12	621,931	0	366.50	0.00	7.35

* Miles of vehicle ways determined not to meet the definition of a road were approximated through the use of topographic quadrangle maps and a Model 2986 K&E Double Face Map Measure.

** Existing road within WSAs (see Glossary for definition of a road).

SOURCE: Phoenix District files

TABLE 4-9
RANCH ECONOMIC IMPACTS BY ALTERNATIVE
Bureau of Land Management, Phoenix District, Arizona

Ranch Impacts	Existing Situation	Proposed Action		No Action		Resource Production		Resource Protection		Environmental Protection	
		Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term
Net Revenue (\$)*											
Small (0-99 Head)	3,743	3,743	3,743	3,743	3,743	3,040	3,040	2,512	2,512	0	0
Medium (100-299 Head)	11,588	11,588	12,424	11,588	11,588	10,460	13,112	6,037	6,037	0	0
Large (Over 300 Head)	34,863	34,863	36,251	34,863	34,863	30,432	36,427	13,419	13,419	0	0
Ranch Values (\$)**											
Small (0-99 Head)	72,000	72,000	72,000	72,000	72,000	61,500	61,500	57,000	57,000	0	0
Medium (100-299 Head)	241,500	241,500	255,000	241,500	241,500	222,000	273,000	127,500	127,500	0	0
Large (Over 300 Head)	894,000	894,000	909,000	894,000	894,000	796,500	925,000	445,500	445,500	0	0

* Net revenue is defined as gross revenue minus cash costs. Net revenue is the amount remaining to pay for owner/operator labor, buy new equipment, and pay off existing ranch debts.

** Ranch values are calculated on the basis of the ranches carrying capacity at a value of \$1,500 per cow.

SOURCE: Lower Gila South Ranch Budgets, Phoenix District files

Large Ranch. Under the *Proposed Action* the herd size of the typical large ranch would remain equal to its authorized grazing preference—518 cows. Long-term forage increases, however, would allow the typical large ranch to stock 531 cows, a three percent increase over existing stocking rates. Yearly net revenue would initially remain at \$34,863 but would gradually increase by four percent to \$36,251 after 20 years. The present value of 20 years of net revenue on the typical large ranch under present grazing management amounts to \$345,498, whereas such revenues under the *Proposed Action* amount to \$350,612 or a two percent increase.

Designating the four wilderness areas under the *Proposed Action* may slightly impact ranch net revenue. Ranchers may be required to build and maintain range improvements in a fashion that would not impair wilderness values. This may result in increased construction and maintenance costs on these improvements. These impacts, however, are expected to be minimal because several of the analyzed wilderness areas are now inaccessible to motorized vehicles.

Ranch Finance

Ranch values are based on a ranch's authorized grazing preference at an estimated \$125 per animal unit month (AUM) or \$1,500 per animal unit (BLM, 1982). Under the *Proposed Action* the value of the typical small ranch would remain at \$72,000. On the typical medium-size ranch, values would initially remain at \$241,500, but would gradually increase by six percent to \$255,000 after 20 years. The value of the typical large ranch would initially remain at \$894,000, but would gradually increase by two percent to \$909,000. See Table 4-9 for short- and long-term changes in ranch values for all alternatives.

Under this alternative the financial condition of ranches would not be impacted in the short term. Long-term forage increases would slightly increase ranch values and thus improve a rancher's ability to borrow operating capital. Operating profits would also be expected to increase slightly in the long term because of increases in ranch carrying capacities.

TABLE 4-10
TOTAL NET RANCH REVENUE OVER A 20-YEAR PERIOD*
Bureau of Land Management, Phoenix District, Arizona

Ranch Size	Existing Situation	Proposed Action	No Action	Resource Production	Resource Protection	Environmental Protection
Small	37,094	37,094	37,094	30,126	25,440	0
Medium	114,839	117,890	114,839	113,403	59,908	0
Large	345,498	350,612	345,498	323,661	135,899	0

* All values are discounted at a rate of 7.875 percent.

SOURCE: Lower Gila South Ranch Budgets, Phoenix District files

4 - ENVIRONMENTAL CONSEQUENCES

Regional Economics

Under the *Proposed Action* annual gross receipts from the sale of livestock would remain at \$739,493 in the short term. Long-term forage increases, however, would increase livestock sales by four percent to \$766,493 (Table 4-11). Both the short- and long-term sales figures account for less than one percent of the total livestock sales in the ESA.

Ranch labor requirements would remain at 13.8 work-years in the short term but increase to 14.2 workyears in the long term. Earnings from this employment would remain at \$173,189 in the short term but increase to \$178,181 after 20 years. Both the short- and long-term earnings would be less than one percent of the ESA's total agricultural related earnings.

Wilderness designation would prohibit mineral entry in the four areas analyzed for designation. Also, development of mineral rights established prior to the designation date would be subject to increased regulation of access and reclamation in order to protect wilderness values. This may result in additional costs to mine operators and therefore discourage development.

The four areas analyzed for designation are all classified as having a low potential for oil and gas development. A number of oil and gas leases have been established in the WSAs, but to date no production has occurred. Currently the lessees pay the government one dollar per acre per year for these oil and gas leases. One-half of the lease revenue is then returned to the state. Under the *Proposed Action* 190,391 designated acres would be withdrawn from BLM's oil and gas leasing program. The loss of this acreage from

TABLE 4-11
REGIONAL ECONOMIC IMPACTS BY ALTERNATIVE
Bureau of Land Management, Phoenix District, Arizona

Regional Impacts*	Existing Situation	Proposed Action		No Action		Resource Production		Resource Protection		Environmental Protection	
		Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term	Long Term
Ranch Receipts (\$)	739,493	739,493	766,493	739,493	739,493	664,078	778,239	383,882	383,882	0	0
Ranch Expenditures (\$)	410,952	410,952	422,775	410,952	410,952	376,134	432,418	243,679	243,679	0	0
Ranch Net Revenue (\$)	328,541	328,541	343,280	328,541	328,541	287,944	345,821	140,203	140,203	0	0
Ranch Employment (X)**											
(Workyears)	13.8	13.8	14.2	13.8	13.8	13.0	14.6	9.6	9.6	0	0
Ranch Employment Related Earnings (\$)**	173,189	173,189	178,181	173,189	173,189	162,652	182,516	120,652	120,652	0	0

* Figures shown are cumulative for all 17 RMP/EIS area ranches.

** Excludes owner/operator employment and earnings; one workyear = 2,600 hours

SOURCE: Lower Gila South Ranch Budgets, Phoenix District files

Recreation Economics

Designating portions of four WSAs as wilderness is expected to increase visitor use in the RMP/EIS area by 4,650 visitor days. Annual recreation related expenditures by visitors would thus increase by \$17,763. These increases would amount to less than one percent of the total 1982 tourism and travel expenditures made in the ESA.

the leasing program would result in a loss of potential lease revenues for both BLM and the state. Table 4-12 shows the acres which would be withdrawn from oil and gas leasing and the potential losses in lease revenue. Under this alternative BLM and the state would each potentially lose \$95,875 per year. When compared to the total oil and gas lease collections BLM receives nationally, the loss of this revenue would be less than one percent.

TABLE 4-12
POTENTIAL OIL AND GAS LEASE REVENUES FORGONE BY WILDERNESS DESIGNATION
Bureau of Land Management, Phoenix District, Arizona

Alternative	Acres Under Lease*	Yearly Revenue	Amount Returned To The State**
Proposed Action	190,391	\$190,391	\$ 95,196
No Action	0	0	0
Resource Production	0	0	0
Resource Protection	326,551	326,551	163,276
Environmental Protection	621,931	621,931	310,966

* Assumes all nonsuitable acres would be leased.

** One-half the lease revenue collected by the BLM is returned to the state.

SOURCE: Phoenix District files

Mineral Economics

Portions of the four WSAs analyzed for designation under this alternative contain deposits of various metallic and nonmetallic minerals, but reliable reserve estimates for these commodities are not known. Some of the deposits of gold, silver, and copper may prove economically viable. However, it is nearly impossible with existing information to estimate the impact that extraction of these and other mineral commodities would have on the local economy and work force.

Conclusion. No significant economic impacts to RMP/EIS area ranchers or to the economy of the ESA would result from the *Proposed Action*. Economic impacts to the minerals industry under this alternative cannot be determined because of the lack of any specific development plans for the minerals present in each WSA. Wilderness designation of portions of four WSAs would withdraw these areas from mineral entry and would potentially have long-term negative impacts to the ESA's economy. Further unemployment of miners and mine workers in an already depressed area would result in decreased economy of the local areas.

Impacts on Social Elements

Conclusion. Under the *Proposed Action* a few ranches would have an increase in income and permit value in the long term. It is assumed that the attitude of the affected ranchers toward this alternative would be neutral to positive.

NO ACTION ALTERNATIVE

Impacts on Rangeland Management

No adjustments in livestock AUMs (60,524) are proposed under this alternative. Applications for nonuse, supplemental use, and change in kind or class of livestock would be approved or disapproved on an annual basis. Existing grazing use patterns and management practices would be allowed to continue without change and therefore would not impact livestock grazing operations. Existing rangeland developments would be maintained and new developments would be constructed by livestock operators for the orderly use of the rangeland. Grazing management on the 22 perennial-ephemeral allotments and on eight perennial-ephemeral grazing leases would remain unchanged. The 18 ephemeral allotments would continue to be managed in accordance with the Special Ephemeral Rule published in December 1968.

Under this alternative all WSAs are analyzed as being unsuitable for wilderness designation (Table 4-1). Until the 12 WSAs are released by Congress and returned to other multiple use management, however, all new rangeland developments constructed within WSAs would have to meet the criteria set forth in the Interim Management Policy for Land Under Wilderness Review.

Conclusion. No impacts to livestock operators would occur from the *No Action* alternative. Existing grazing use patterns and management practices would continue without change. All WSAs would be returned to other multiple use management and wilderness restrictions would not affect livestock operations.

Impacts on Vegetation

The short-term impacts on vegetation would be the continuation of present trends in rangeland condition. Changes in trend in rangeland condition are subtle in the Sonoran desert and therefore difficult to assess without any long-term data. Because this alternative proposes no changes in management practices, there would be a negligible impact on livestock forage.

The downward apparent trend in rangeland condition on five percent (69,600 acres) of 11 perennial-ephemeral allotments (Appendix 15) would eventually stabilize as would the 160,670 acres (10 percent of the Lower Gila South RMP/EIS area) exhibiting an upward apparent trend. Rangeland condition would decline in areas closest to water sources because of the continued grazing and lack of minimum rest periods. Overall, rangeland condition and trend would remain in static condition with rangeland condition in the fair to good condition class. Rangeland condition on the 18 ephemeral allotments (Custodial) would not change in this alternative. These allotments are grazed only when ephemeral forage has the potential to become available.

Conclusion. Because this alternative proposes no changes in grazing management practices, there would be a negligible impact on livestock forage. Downward and upward apparent trends in rangeland condition would eventually stabilize. Rangeland condition would decline in areas closest to water sources. Overall, rangeland condition and trend would remain static with rangeland condition in the fair to good condition class.

Impacts on Wilderness Values

None of the 12 WSAs in the Lower Gila South RMP/EIS area would be designated as wilderness under the *No Action* alternative. All 621,931 acres would be returned to multiple use management. Wilderness and associated resource values present in the WSAs might be damaged or permanently lost over the long term because land uses detrimental to wilderness could be permitted. Resource uses that could adversely impact the wilderness character of the WSAs are mining and energy development, motorized vehicle use, and rights-of-way and other utility uses.

Developing mineral and energy resources could damage wilderness values by disturbance of natural landscapes, resulting in the loss of an area's naturalness. Road construction, extraction, and installation of facilities could further cause a loss of solitude and primitive recreation opportunities. Mining activity could cause long-term, irreversible and adverse impacts to wilderness and supplemental resource values.

4 - ENVIRONMENTAL CONSEQUENCES

Issuing rights-of-way for roads or new utility uses would cause a decline or loss of wilderness values in areas so affected. Utility lines could cross portions of the New Water Mountains, Little Horn Mountains, Eagletail Mountains, Face Mountains, Signal Mountain, Butterfield Stage Memorial, South Maricopa Mountains, and North Maricopa Mountains WSAs. Public lands in some WSAs could also be subject to disposal actions over the long term. Mining, rights-of-way, and other developments would result in new or increased access into previously remote or unvisited areas. This could lead to increased motorized vehicle use.

Continued and increased motorized recreation use would occur in all WSAs. The attractiveness of these 12 areas for solitude and nonmotorized types of primitive recreation could decline as motorized recreation use increases or spreads to previously unused areas. Supplemental wildlife, cultural, scenic, and botanical resource values would also be adversely affected by increased access of motorized vehicles into remote areas.

Small scale projects for wildlife and livestock management (fences, waters, corrals) could slightly impair wilderness values because they would be installed without wilderness constraints on placement and design. In addition, all the WSAs would be managed under VRM Class II, III, or IV standards, which afford less protection to visual resources than the Class I standards required by wilderness.

Conclusion. The *No Action* alternative would not designate any areas as wilderness. Over the long term the wilderness values presently existing would be lost because of mineral development, motorized vehicle use, and other land uses.

Impacts on Land Uses

Conclusion. This alternative would have little or no impact on the every day land actions. It would preclude the formal designation of the proposed utility corridors and the proposed land tenure adjustments. This would force major rights-of-way to be considered on a case-by-case basis and would also interfere with the plans of the State of Arizona and BLM to develop a more manageable land ownership pattern.

Impacts on Wildlife

Rangeland Management Issue

Under the *No Action* alternative no rangeland developments are proposed, but developments would be allowed on a case-by-case basis. Possible impacts are the same as those identified under *Proposed Action*. BLM

would address specific impacts of all future developments on wildlife and attempt to mitigate them as described in the Wildlife Management Guidance section in Chapter 2.

Mule Deer. Under the *No Action* alternative long-term adverse impacts would continue to occur on a site-specific basis to mule deer. BLM inventory studies indicated that browse vigor is very low on Conley, Lower Vekol, Cameron, Bighorn, and Belloat allotments (Fredlake and Lucas, 1982). Mule deer habitat would continue to decline on these allotments without monitoring studies to indicate need for management action.

Desert Bighorn Sheep. Bighorn sheep disease exposure would continue throughout the Lower Gila South RMP/EIS area at current grazing levels. This constitutes a serious long-term negative impact to bighorn.

Sonoran Pronghorn. Continued forage conflict would exist between Sonoran pronghorn and livestock on the Cameron allotment, constituting highly significant, long-term adverse impacts. Pronghorn habitat in the Lower Gila South RMP/EIS area would continue to decline.

Desert Tortoise. No long-term improvement would be expected in desert tortoise habitat. Since no monitoring is planned under this alternative, BLM would have no data to identify allotments where serious forage conflicts occur, and no remedial action could be taken. An adverse long-term impact to tortoise would result.

Riparian Habitat. This alternative would result in no impact to riparian habitat along the Gila River. No significant degradation in riparian habitat would result at current stocking levels.

Nongame Habitat in Vekol Valley Grassland. Under the *No Action* alternative loss of perennial grass cover and soil in Vekol Valley will continue unabated. This represents a long-term negative impact to amphibian habitat in the grassland area.

Conclusion. The short-term impacts to Sonoran pronghorn, desert bighorn sheep, desert tortoise, mule deer, and riparian habitat would be substantially the same as the *Proposed Action*. No monitoring is proposed under this alternative, thus BLM will be unable to identify or correct conflicts between wildlife and livestock. This represents an adverse impact to Sonoran pronghorn, desert bighorn sheep, mule deer, and desert tortoise. Under the *No Action* alternative, no beneficial, long-term impacts would occur to wildlife.

Wilderness Issue

Conclusion. Under this alternative, no wilderness would be designated. Desert bighorn sheep and desert tortoise would continue to suffer human disturbance and habitat loss. This constitutes an adverse impact.

Land Tenure Issue

Conclusion. Under the *No Action* alternative, no impacts to wildlife would occur from the land disposal proposal or from the split mineral estate issue. Nonacquisition could cause a slight long-term adverse impact on public lands along the Fred J. Weiler Green Belt where riparian habitat could be converted from valuable bird habitat to low-value disturbed land.

Utility Corridor Issue

Conclusion. The impacts to wildlife from not designating corridors would be somewhat detrimental because new areas previously untouched by utility line construction could be significantly damaged in terms of wildlife habitat values.

Impacts on Minerals and Energy

The *No Action* alternative would have a positive impact on the development of minerals and energy resources. All WSAs (621,931 acres) now under study would be recommended as unsuitable for wilderness designation and would be returned to other multiple use management. All areas in the Lower Gila South RMP/EIS area would remain open for mineral entry in accordance with the mining regulations. Mineral exploration, identification and development is encouraged under multiple-use management. Preservation of the environment is assured under the laws and regulations presently in effect.

Conclusion. Under this alternative, all lands would be retained in federal ownership and no changes in the lands or minerals programs would be proposed. There would be no significant impact to the minerals program from this alternative.

Impacts on Soils

Soil erosion would continue to accelerate in the severe condition areas, drainageways, and the Gila River. Any proposed soil-disturbing projects in the high soil-blowing and severe-erosion condition areas would be evaluated on an individual basis using the environmental assessment process. Mitigating measures would be applied as appropriate.

Conclusion. Soils would not be significantly impacted under this alternative. Any soil-disturbing projects in the desert pavement areas would be evaluated under the environmental assessment process on a site-specific basis.

Impacts on Cultural Resources

Cultural resources would not be impacted by the proposed range issue since no rangeland developments are proposed under the *No Action* alternative. Impacts to cultural resources would be evaluated in environmental assessments on a case-by-case basis.

Conclusion. Under the *No Action* alternative adverse impacts from mining, ORV use, and road construction could occur on 218,560 acres (within 12 WSAs) likely to contain cultural resources. One site eligible for the National Register and one extensive archaeological district nominated to the National Register would not have additional protection offered by wilderness designation under this alternative. The Gila Bend, Eagletail, and Maricopa Mountains, which are significant to a number of Native Americans, would not have the added protection afforded by wilderness designation.

Impacts on Recreation

Conclusion. Under this alternative, there would be no impacts to recreation use, and all 621,931 acres would remain open to ORV use. The visual resources on 621,931 acres would be less protected under the Class II, Class III, and Class IV guidelines than if they were managed under the more restrictive guidelines of Class I under wilderness designation.

Impacts on Economic Conditions

Ranch Budgets

Under the *No Action* alternative, ranches in the RMP/EIS area would keep their authorized grazing preference. Thus, ranches would be allowed to stock cattle up to this grazing preference and the financial situation depicted by the typical ranch budgets would be expected to continue (Tables 4-9 and 4-10).

No wilderness areas would be designated under the *No Action* alternative. Thus, ranchers would be allowed to continue present maintenance and construction practices on new range improvements. Therefore, no increased costs for constructing and maintaining range improvements would be expected.

Regional Economics

Livestock sales, livestock related employment, and earnings are expected to remain at existing levels, and the *No Action* alternative would not impact the ESA's economy (Table 4-11).

4 - ENVIRONMENTAL CONSEQUENCES

Recreation Economics

Recreation use as well as expenditures made by recreationists visiting the RMP/EIS area would be expected to continue along present trends.

Mineral Economics

The *No Action* alternative would allow mineral entry in the WSAs under rules established by the 1872 mining law. Thus, this alternative would not affect mine operating costs. Oil and gas leasing would continue along present trends, therefore, this alternative would not affect the yearly revenue collected by BLM for oil and gas leases. BLM would also continue returning one-half of the oil and gas lease collections to the State of Arizona (Table 4-12).

Conclusion. No significant economic impacts to RMP/EIS area ranchers or the economy of the ESA would result from the *No Action* alternative. The minerals industry would be free from wilderness restrictions under *No Action* and would be allowed to locate and develop minerals under the 1872 mining laws. Thus, the minerals industry would not be economically impacted by this alternative.

Impacts on Social Elements

Conclusion. The *No Action* alternative would maintain the current grazing situation; therefore, no social impacts to ranchers would occur.

RESOURCE PRODUCTION ALTERNATIVE

Impacts on Rangeland Management

The *Resource Production* alternative would initially reduce livestock numbers on public land by 10 percent to 54,315 AUMs from the authorized grazing preference of 60,524 AUMs. This alternative proposes to develop eight allotment management plans (AMPs) on eight perennial-ephemeral Maintain allotments encompassing approximately 531,400 acres of public land (Table 2-5). These are allotments that exemplify a moderate to high potential for rangeland improvement. The remaining 14 perennial-ephemeral allotments and eight grazing leases in the Maintain and Custodial categories would not have AMPs developed for them, but rangeland developments could be constructed if needed for the orderly use of the rangeland. Ephemeral allotments would not be impacted by this alternative and would continue to be administered in accordance with the Special Ephemeral Rule.

Construction of new rangeland developments in previously unused areas would result in more usable forage becoming available for livestock and wildlife (see Table

2-1). The allotments with developed AMPs would generally shift from continuous or sporadic grazing to grazing systems with periodic rest and seasonal deferment.

Over time, key forage species production and vigor would improve, increasing the quality and quantity of forage grazed by livestock. In the long term (5-25 years) an increase of 4,023 AUMs above the current authorized grazing preference (from 60,524 to 64,547 AUMs) could be expected from implementing this alternative.

This alternative would increase livestock operator workloads and expenses but would cause short-term impacts. Increased maintenance costs would result in the long term from the construction of new rangeland developments. Fencing of pastures and allotment boundaries would permit greater control over livestock and help in detecting trespass.

Under this alternative all WSAs are analyzed as being unsuitable for wilderness designation (Table 4-1). Until the 12 WSAs are released by Congress and returned to other multiple use management, however, all new rangeland developments constructed within WSAs would have to meet the criteria set forth in the Interim Management Policy for Land Under Wilderness Review.

Conclusion. The *Resource Production* alternative initially reduces livestock numbers in the Lower Gila South RMP/EIS area to 54,315 AUMs, a 10 percent reduction from the authorized preference of 60,524 AUMs. AMPs would be developed for eight perennial-ephemeral allotments, resulting in an estimated increase of 4,023 AUMs above the authorized preference (from 60,524 to 63,549 AUMs). In the long term a small increase in maintenance costs to the operator would result. All WSAs would be returned to other multiple use management and would not affect livestock grazing operations.

Impacts on Vegetation

Implementation of eight AMPs on 531,400 acres of public land involving eight livestock operators would benefit livestock forage. Grazing treatments and new rangeland developments would improve livestock distribution and improve the availability of livestock forage, thereby improving seedling establishment, vigor and reproduction of key forage plants. Downward apparent trend on approximately 40,000 acres on eight Maintain allotments with AMPs would be reversed or stabilized with the construction of new rangeland developments.

In the short term, initial reductions would slightly improve the vigor of the preferred forage plants. In the long term, vegetation would improve in a shorter time in high-response areas and at a slower rate on low response sites on those allotments with implemented AMPs.

Rangeland developments for Maintain and Custodial allotments without AMPs would also improve livestock

distribution and stabilize or improve downward trends in rangeland condition. Vegetation on the remaining 18 ephemeral allotments and eight grazing leases in the Custodial category would not change in the long term under this alternative.

Conclusion. Beneficial impacts to the vegetation resources would occur by implementing this alternative. Allotment management plans (AMPs) would be developed for eight allotments involving 531,400 acres of public land. In the short term, initial reductions and new rangeland developments would slightly improve the vigor of the preferred forage plants. In the long term, vegetation would improve most rapidly on allotments with implemented AMPs.

Impacts on Wilderness Values

Conclusion. Under the *Resource Production* alternative, impacts would be identical to those described under the *No Action* alternative. All 12 WSAs (621,931 acres) would be returned to other multiple use management.

Impacts on Land Uses

Conclusion. The *Resource Production* alternative would be the most beneficial for the lands program. Because there would be no designated WSAs, future rights-of-way would not be precluded in these 12 areas. Additionally, this alternative allows for the development of utility corridors and the development of the land tenure adjustment program.

Impacts on Wildlife

Rangeland Management Issue

Under the *Resource Production* alternative desert tortoise, bighorn sheep, and mule deer habitat conditions could improve on those allotments proposed for allotment management plans (AMPs). The degree of benefit depends on the specific contents of the plans and cannot be further assessed at this time. Sonoran pronghorn habitat conditions could improve as a result of the AMP proposed for Cameron allotment, again depending on the specific content of the plan.

If monitoring studies indicated a need for reduction in stocking rates then significant long-term benefits would result for mule deer, Sonoran pronghorn, desert tortoise, and desert bighorn sheep.

More fencing, wells, and reservoirs are proposed but this will not necessarily be more detrimental (in the case of desert tortoise and desert bighorn) or more positive (in the case of small game and waterfowl). Impacts of specific

development proposals would be analyzed on a case-by-case basis.

Conclusion. Overall, impacts to wildlife would be similar to the *Proposed Action*, except for impacts to Sonoran pronghorn. Sonoran pronghorn would be beneficially impacted to an unquantified extent (Table 4-2).

Wilderness Issue

Conclusion. Impacts to wildlife under the *Resource Production* alternative would be the same as the under *No Action* alternative (Table 4-4).

Land Tenure Issue

Conclusion. Land disposal and split mineral estate impacts to wildlife under the *Resource Production* alternative would be the same as under the *Proposed Action*. A total of 2,200 acres of bighorn sheep habitat is proposed for acquisition under this alternative. This acquisition would benefit bighorn sheep only. Because of nonacquisition, nonpublic lands along the Fred J. Weiler Green Belt would be susceptible to conversion from valuable wildlife habitat to low-value disturbed land. Slight long-term adverse impacts would result.

Utility Corridor Issue

Conclusion. The impacts to wildlife under this alternative would be the same as under the *Proposed Action*.

Impacts on Minerals and Energy

Conclusion. The *Resource Production* alternative would have a beneficial impact on the development of mineral resources in the RMP/EIS area. All 12 WSAs would return to other multiple use management and exploration, prospecting, and mining would be encouraged. Ninety percent of all mining activity in these areas is carried out by small mine operators. The local economy would be beneficially impacted and large scale explorations would be encouraged.

Acquisition of 22,842 acres under the *Resource Production* alternative would be beneficial to mining interests because these areas would be open to mineral exploration. Acquiring 112,160 acres of state and private mineral estate acres to consolidate split mineral estates would be beneficial because BLM would control both surface and subsurface lands. Protection of the environment is assured by the adequacy of the present laws and regulations.

4 – ENVIRONMENTAL CONSEQUENCES

Impacts on Soils

Conclusion. Any proposed soil-disturbing projects in the fragile soil areas would be evaluated using the environmental assessment process on a case-by-case basis. The short-term reduction and greater distribution of livestock would be beneficial in reducing soil erosion in and adjacent to the drainageways and the Gila River that are heavily used by livestock.

Impacts on Cultural Resources

Conclusion. Under the *Resource Production* alternative the impacts to cultural resources for all issues would be the same as those described under the *No Action*.

Impacts on Recreation

Conclusion. Under this alternative the impacts to ORV use and recreation visitor use would be the same as those described under the *No Action* alternative.

Impacts on Economic Conditions

This section describes the economic impacts of the *Resource Production* alternative on the RMP/EIS area ranchers and the economy of the three-county economic study area (ESA). Impacts from expected changes in outdoor recreation use and oil and gas lease revenues will also be described.

Ranch Budgets

Small Ranch. Under this alternative the herd size of the typical small ranch would be reduced by 16 percent from 42 cows to 35 cows in the short term and would remain at this level over the long term. Yearly net revenue would decrease by 19 percent from an existing level of \$3,743 to \$3,040 (Table 4-9).

The present value of 20 years of net revenue under present management amounts to \$37,094, whereas such revenues under the *Resource Production* alternative amount to \$30,126 (Table 4-10).

Medium Ranch. Under this alternative the herd size of the typical medium-size ranch would initially be reduced by nine percent from 140 cows to 128 cows. Long-term forage increases, however, would allow the typical medium-size ranch to increase its herd size to 158 cows (a 13 percent increase over existing levels). Yearly net revenue would decrease in the short term by 10 percent from \$11,588 to \$10,460, but over a 20-year period under the projected forage increases for the *Resource Production* alternative the yearly net revenue would gradually increase 13 percent over existing levels to \$13,112.

The present value of 20 years of net revenue on the typical medium-size ranch under present grazing management amounts to \$114,839, whereas such revenues under the *Resource Protection* alternative amount to \$113,403.

Large Ranch. Under this alternative, the herd size of the typical large ranch would be reduced by 10 percent from 518 cows to 465 cows. Long-term forage increases, however, would allow the typical large ranch to increase its herd size four percent over existing levels to 541 cows. Yearly net revenue would decrease in the short term by 13 percent from \$34,863 to \$30,432, but over a 20-year period yearly net revenue would gradually increase four percent over existing levels to \$36,427.

The present value of 20 years of net revenue on the large ranch under present grazing management amounts to \$345,498, whereas such revenues under the *Resource Production* alternative amount to \$323,661.

Ranch Finance

Ranch values are based on authorized grazing preference figures at an estimated value of \$125 per AUM or \$1,500 per animal unit (BLM, 1982). The *Resource Production* alternative would reduce the authorized grazing preference in the short term, but gradually increase this preference in the long term to a higher level than now exists.

The value of the typical small ranch would decrease 15 percent from an existing value of \$72,000 to \$61,500 and remain at this level. The value of the typical medium-size ranch would decrease from an existing value of \$241,500 to \$222,000 in the short term. Long-term AUM increases, however, would gradually raise the value of the medium-size ranch to \$273,000, 13 percent higher than existing levels. The value of the typical large ranch would decrease from an existing value of \$894,000 to \$796,500 in the short term, but after 20 years gradual increases in grazing authorizations are expected to raise the value to \$925,000, a three percent increase from existing levels.

The overall impact of the *Resource Production* alternative on RMP/EIS area ranchers would vary from ranch to ranch. Generally, the short-term reduction in ranch values would adversely affect the asset base of the rancher, making it more difficult to borrow money. Long-term increases in ranch value, however, would improve this condition.

Regional Economics

Under the *Resource Production* alternative, annual gross receipts from the sale of livestock would be reduced by 10 percent from \$739,493 to \$664,078 in the short term. Over the long term gross receipts would increase five percent over existing levels to \$778,239. Livestock sales from

RESOURCE PRODUCTION ALTERNATIVE

the RMP/EIS area ranchers, however, would still be less than one percent of total livestock sales in the three-county ESA.

Ranch labor would decrease from 13.8 workyears to 13 workyears in the short term and increase to 14.6 workyears over the long term. The reduction in ranch hired labor would not significantly affect the economy of the ESA.

Recreation Economics

Recreation use as well as recreation expenditures would continue along present trends under the *Resource Production* alternative. There might be a slight increase in hunter use in the RMP/EIS area because of the additional water developments proposed under this alternative, but expenditures made by these hunters would not significantly affect the economy of the ESA.

Mineral Economics

No wilderness study areas would be designated under the *Resource Production* alternative. Mineral entry would be allowed under the 1872 mining laws, and thus mine operating costs would not be affected by this alternative. Oil and gas leasing revenues collected by the BLM would not be impacted nor would the amount of revenue returned to the State of Arizona (Table 4-12).

Conclusion. Under the *Resource Production* alternative RMP/EIS area ranchers would experience a slight economic loss in the short term. Over the long term, however, ranchers would realize a slight economic benefit from the projected increase in forage. The economy of the ESA would not be impacted under this alternative. The minerals industry would be free from wilderness restrictions and would be allowed to locate and develop minerals under the 1872 mining laws. Thus, the minerals industry would not be economically impacted by this alternative.

Impacts on Social Elements

Conclusion. The *Resource Production* alternative would improve the long-term income and permit value of some ranchers. It is assumed that the attitudes of the affected ranchers would be positive.

RESOURCE PROTECTION ALTERNATIVE

Impacts on Rangeland Management

This alternative proposes a 47 percent reduction in the authorized grazing preference from 60,524 AUMs to 31,914 AUMs on 30 perennial-ephemeral allotments and Section 15 grazing leases (see Appendix 11). This reduction

is based on the enhancement of other resources such as wildlife, threatened and endangered (T&E) plant habitat, and watershed. Another factor used to determine stocking rates was the amount of browse hedging in 16 allotments with high wildlife values (Table 4-13). The remaining eight perennial-ephemeral Section 15 grazing leases and the 16 ephemeral allotments would be managed the same as under the *No Action* alternative. The eight perennial-ephemeral allotments without significant browse hedging would be reduced to their five-year average licensed use (1976-1981). These adjustments would result in short- and long-term significant adverse impacts to livestock grazing operations in the Lower Gila South RMP/EIS area. Livestock permittees would have to secure alternate pastures on private or state lands in order to continue at their existing levels of operation, or be forced out of the cow-calf operation business. Except for phasing in most of the reductions in AUMs over a five-year period, very little can be done to mitigate the adverse impacts these reductions would have on livestock operators.

TABLE 4-13
ALLOTMENTS WITH SIGNIFICANT
BROWSE HEDGING
Bureau of Land Management,
Phoenix District, Arizona

Arnold*	Eagle Tail
Powers Butte*	Hazen
Beloat	Kirian
Bighorn	Lower Vekol
Cameron	South Vekol
Childs	Table Top
Conley	Vekol
Coyote Flat	Why

*Ephemeral Allotments

SOURCE: Phoenix District files

Proposing 326,551 acres as suitable for wilderness designation would not significantly impact livestock grazing on 14 perennial-ephemeral and six ephemeral allotments under this alternative (Table 4-1). No new rangeland developments are being proposed and would be allowed only if they were necessary for the protection of other resources such as wildlife, botanical, watershed, or wilderness protection and enhancement.

Conclusion. Implementation of the *Resource Protection* alternative would adversely impact livestock operators in the Lower Gila South RMP/EIS area. Initially, livestock numbers would be reduced to 31,914 AUMs, a 47 percent reduction from the authorized grazing preference of 60,524 AUMs. The reduction is based on enhancement of other resources and on browse hedging on allotments with high wildlife values.

4 – ENVIRONMENTAL CONSEQUENCES

Since livestock numbers would be significantly reduced and would remain at those low levels, livestock grazing would not be impacted by designating portions of seven WSAs on 14 perennial-ephemeral and six ephemeral allotments.

Impacts on Vegetation

Implementing the *Resource Protection* alternative would be beneficial to vegetation on 14 perennial-ephemeral allotments and two ephemeral allotments involving 946,366 acres. Vegetation on the remaining six perennial-ephemeral allotments (Clem, Crowder-Weisser, Hansen, Sentinel, South Vekol, and Ward) would also improve as a result of reducing AUMs to the five-year average licenses (1976–1981). Vegetation on the remaining 16 ephemeral allotments and eight Section 15 allotments would not be impacted. They would continue to be managed the same as under the *No Action* alternative.

Allotments displaying stable or upward apparent trends in rangeland condition would improve most rapidly in high response areas where significant reductions in livestock numbers occur and where browse competition between livestock and mule deer are highest. Vegetation improvement would not be significant in areas already showing satisfactory condition. Declining apparent trend in rangeland condition on approximately 70,000 acres of public land would either stabilize or be reversed.

Reductions in livestock numbers on perennial-ephemeral allotments would decrease grazing pressure around permanent waters used yearlong. Improvement would be most significant in areas currently in poor and fair rangeland condition that have high potential to respond to a reduction in livestock grazing. Rate of improvement is also highly dependent on precipitation and soils.

Conclusion. Vegetation on 22 perennial-ephemeral allotments would benefit from the significant reduction in livestock numbers. The remaining 18 ephemeral allotments and eight Section 15 allotments would not be impacted since no reductions are proposed.

Impacts on Wilderness Values

Wilderness designation of 24,200 acres of the New Water Mountains, 50,460 acres of the Little Horn Mountains, 90,261 acres of the Eagletail Mountains, 26,390 acres of Face Mountain, 61,000 acres of Woolsey Peak, 39,840 acres of the North Maricopa Mountains, and 34,400 acres of the Table Top Mountains would ensure the protection and preservation of their wilderness values in both the short and the long term.

Protection of wilderness values on 326,551 acres would, in turn, benefit wildlife, botanical, soils, and scenic resource values. Long-term benefits would be provided by

preserving lands in which natural ecological processes would continue with little or no human interference.

A total of 241,170 acres of crucial bighorn sheep habitat would be protected by wilderness in the New Water Mountains, Little Horn Mountains, Eagletail Mountains, Woolsey Peak, North Maricopa Mountains, and Table Top Mountains. Desert tortoise habitat (17,570 acres) would be protected from surface disturbances in the New Water Mountains, North Maricopa Mountains, and Table Top Mountains WSAs. Two significant Sonoran Desert botanical areas, proposed as natural areas by the Arizona Academy of Sciences in the Eagletail Mountains and Table Top Mountains, would be maintained in their natural state by wilderness. Wilderness would ensure their continued value for nature study and scientific or educational use.

Desert pavement soils, vegetation, and protected plants would be protected in all areas due to the restriction of mining, utility construction, and motorized vehicle use across 326,551 acres.

The scenic and visual values in seven varied Sonoran Desert landscapes would be preserved and managed under VRM Class I objectives. Class I objectives and management requirements allow little or no change in the natural landscape.

Designation of these seven areas would enhance the diversity of the NWPS in Arizona and the region. Residents of five SMSAs would have additional opportunities for solitude and nonmotorized recreation activities. The geographic distribution of wilderness in southwest Arizona would be enhanced by the establishment of seven wilderness areas. The Organ Pipe Wilderness is presently the only wilderness area in southwest Arizona. Designation of these seven areas would add no new ecosystems to the NWPS but would create additional representatives of the paloverde-cactus shrub and creosotebush-bursage vegetation types.

All seven areas analyzed suitable are considered manageable as wilderness over the long term. Minor manageability problems include nonfederal surface and mineral inholdings, possible mining claim development, and motorized vehicle use. The overall impacts of these problems on wilderness values and manageability are considered insignificant.

Acquisition through land exchange of 3,083 acres of state surface and mineral lands and 2,141 acres of state mineral rights within the seven WSAs would facilitate wilderness management of the area and enhance botanical, wildlife, wilderness, and related multiple resource values. Acquisition of the above acreage would allow such parcels to be incorporated into the wilderness proposals.

Nondesignation of five entire WSAs (Little Horn Mountains West, East Clanton Hills, Signal Mountain, Butterfield Stage Memorial, and South Maricopa Mountains) and portions of the seven other WSAs would return these lands to multiple use management. This action could result in a loss or damage of wilderness values over the long

term. Land uses detrimental to wilderness and supplemental values could be permitted, including mineral and energy development, rights-of-way and other land actions, and motorized vehicle use.

Mineral exploration and development could occur in all areas not designated wilderness as they would remain open to mineral entry. Surface disturbance could occur from assessment work, road construction, exploratory activities, and small-scale mining operations. If development occurred, there could be adverse impacts to wilderness resources.

Motorized vehicle use, new rights-of-way, and other land actions could diminish or eliminate the natural character of nondesignated areas. Utility lines could be constructed through portions of the New Water Mountains, Littlehorn Mountains, Signal Mountain, North Maricopa Mountains, South Maricopa Mountains, and Butterfield Stage Memorial WSAs. Outstanding opportunities for solitude and primitive recreation experiences could decline or be permanently lost in such areas.

The areas not designated wilderness would revert to VRM Class II, III, or IV visual management protection objectives. These VRM classes pose fewer restrictions on layout, design, and construction of proposed developments than the Class I objectives required by wilderness. Contrasts in the landscape resulting from developments could be more noticeable since projects affecting the scenery could be allowed. Small scale projects for wildlife and livestock could slightly impair natural values because they would be installed without wilderness constraints on placement and design.

The ability of nondesignated areas to enhance the present diversity of the NWPS would be lost. Additional wilderness opportunities for residents of five SMSAs would be forgone by nondesignation of these areas.

Conclusion. For the portions of seven WSAs analyzed suitable for wilderness designation (New Water Mountains, Little Horn Mountains, Eagletail Mountains, Face Mountain, Woolsey Peak, North Maricopa Mountains, and Table Top Mountains) there would be short- and long-term beneficial impacts to the wilderness resource by preserving the natural values, outstanding opportunities for solitude and primitive recreation, supplemental values, and enhancing the diversity of the NWPS in Arizona.

For those five entire and seven partial WSAs analyzed nonsuitable for designation, there could be long-term loss or damage to the wilderness resources because of mineral development, motorized vehicle use, and rights-of-way construction.

Impacts on Land Uses

Conclusion. The *Resource Protection* alternative would not impact the routine lands program except that designation of seven WSAs (New Water Mountains, Little Horn

Mountains, Eagletail Mountains, Face Mountain, Woolsey Peak, North Maricopa Mountains, and Table Top Mountains—326,551 acres) would preclude future land actions within these areas. This alternative would allow the development of the land tenure adjustment program and the development of utility corridors with the exception of the El Paso corridor. If this alternative is accepted, the Eagletail WSA (2-128) would conflict with approximately five miles of the proposed EL Paso corridor.

Impacts on Wildlife

Rangeland Management Issue

Conclusion. Under this alternative competition between cattle and mule deer would be somewhat alleviated by reductions in stocking rates on Beloit, Bighorn, Cameron, Conley, and Lower Vekol allotments. This represents a significant long-term benefit for mule deer. A 612-AUM reduction in livestock use on Cameron allotment would also significantly benefit Sonoran pronghorn. Slight benefits to desert bighorn sheep and desert tortoise would also occur. No change would occur in riparian habitat condition immediately, but a slight beneficial impact may result because of reductions called for under this alternative.

Wilderness Issue

Conclusion. Under the *Resource Protection* alternative 241,170 acres of crucial desert bighorn sheep habitat and 17,570 acres of crucial desert tortoise habitat would be protected under wilderness designation (Table 4-14). This represents almost a two-fold increase in protected acreage for both species over the *Proposed Action*. This alternative provides significant beneficial impacts to both species.

TABLE 4-14
ACRES OF HABITAT PROTECTED UNDER THE RESOURCE PROTECTION ALTERNATIVE
Bureau of Land Management, Phoenix District, Arizona

WSAs	Crucial Desert Bighorn Sheep Habitat*	Crucial Desert Tortoise Habitat**
New Water Mountains	24,120	5,820
Little Horn Mountains	45,320	0
Eagletail Mountains	62,520	0
Face Mountain	0	0
Woolsey Peak	58,240	0
North Maricopa Mountains	28,190	7,050
Table Top Mountains	22,780	4,700
TOTAL	241,170	17,570

* Crucial desert bighorn sheep habitat: habitat necessary to maintain current bighorn populations. Population density varies.

** Crucial desert tortoise habitat: habitat with tortoise population densities of 50 tortoise per square mile or greater. All WSAs contain tortoise populations.

SOURCE: Phoenix District files

4 - ENVIRONMENTAL CONSEQUENCES

Land Tenure Issue

Conclusion. Land disposal and split mineral estate impacts would be the same under the *Resource Protection* alternative as under the *Proposed Action*. In addition to the wildlife habitat acquired by the wilderness issue, BLM would acquire 14,140 acres of riparian habitat along the Gila River for protective management for a total of 16,340 acres. This would increase the benefits for riparian bird species over that provided under the *Proposed Action*. Lands exchanged for desert bighorn sheep habitat management would remain the same as under the *Proposed Action*.

Utility Corridor Issue

Conclusion. Utility corridor impacts to wildlife under the *Resource Protection* alternative would be the same as under the *Proposed Action*.

Impacts on Minerals and Energy

Conclusion. The *Resource Protection* alternative would impact mineral exploration in portions of seven WSAs (326,551 acres) that are analyzed as being suitable for wilderness designation. This represents approximately 16 percent of the RMP/EIS area that would be withdrawn from mineral entry. A total of 666 mining claims and 326,551 acres of oil and gas leases would be adversely affected. Five entire WSAs and portions of seven WSAs would be analyzed as unsuitable for wilderness designation and would be returned to other multiple use management.

Acquisition of 42,505 acres would be beneficial to miners and the mining industry because this land would be open to mineral exploration. Acquiring 112,160 acres of state and private mineral estate would be beneficial because BLM would control both the surface and subsurface lands.

Impacts on Soils

The reduction of livestock would be beneficial in reducing soil erosion in and adjacent to the heavily used drainageways along the Gila River. Any proposed soil-disturbing project in the high soil-blowing and severe-erosion areas would be evaluated before being authorized.

Conclusion. Soils would not be significantly impacted under this alternative, although the reduction of livestock would be beneficial to the fragile desert soils (desert pavement). Any proposed soil disturbance project would be

evaluated using site-specific environmental assessments on a case-by-case basis.

Impacts on Cultural Resources

Conclusion. Under the *Resource Protection* alternative, all impacts to cultural resources for all issues except the wilderness issue will be the same as under the *Proposed Action*. Designating portions of seven ESAs (326,551 acres) as wilderness would have the same general impacts as those described in the *Proposed Action*. Approximately 45 percent of the proposed WSA acres or 145,513 acres may contain cultural resources which would be beneficially affected (see Table 4-6).

In addition, several more significant cultural sites and areas would have added protection, including a portion of the Maricopa Mountain (which has significance to the Pima, Sand Papago, and Maricopa Indians), the Butterfield Stage Route, and a portion of the Dendora Valley Archaeological District.

Impacts on Recreation

Conclusion. Under the *Resource Protection* alternative a total of 170.45 miles of vehicle ways, six miles of roads, and 326,551 acres would be closed to vehicle use (Table 4-8). An estimated increase of 5,900 visitor days/year of recreation use is expected under this alternative.

Impacts on Economic Conditions

This section describes the economic impacts of the *Resource Protection* alternative on RMP/EIS area ranchers and the economy of the economic study area (ESA). Impacts from expected changes in outdoor recreation use, and oil and gas lease revenues will also be described.

Ranch Budgets

Small Ranch. Under the *Resource Protection* alternative the herd size of the typical small-size ranch would be reduced by 24 percent from 42 cows to 32 cows and would remain at this level over the long term. Yearly net revenue would decrease by 33 percent from \$3,743 to \$2,512 and would remain at that level over the long term (Table 4-9). The present value of 20 years of net revenue under present management amounts to \$37,094, whereas such revenues under the *Resource Protection* alternative would amount to \$25,440 (Table 4-10).

Medium Ranch. Under this alternative the herd size of the typical medium-size ranch would be reduced by 47 percent from 140 cows to 74 cows and would remain at this

level over the long term. Yearly net revenue would decrease by 54 percent from \$13,112 to \$6,037 and remain at that level over the long term. The present value of net revenue under present management for the medium-size ranch amounts to \$114,839, whereas such revenues under the *Resource Protection* alternative amount to \$59,908.

Large Ranch. Under this alternative the herd size of the typical large-size ranch would be reduced 50 percent from 518 cows to 260 cows and would remain at this level over the long term. Yearly net revenue would decrease 62 percent from \$34,863 to \$13,419 and remain at that level over the long term. The present value of net revenue under present management amounts to \$345,498, whereas such revenues under the *Resource Protection* alternative amount to \$135,899.

Ranch Finance

Ranch values are based on a ranch's authorized grazing preference figures at an estimated \$125 per AUM or \$1,500 per animal unit (BLM, 1982). The *Resource Protection* alternative would severely reduce the authorized grazing preference and thus the value of ranches in the RMP/EIS area. The value of the typical small ranch would decrease 21 percent from an existing value of \$72,000 to \$57,000 and remain at that value over the long term. The value of the typical medium-size ranch would decrease 47 percent from an existing value of \$241,500 to \$127,500 and remain at that value over the long term. The value of the typical large-size ranch would decrease 50 percent from an existing value of \$894,000 to \$445,500 and remain at that level over the long term.

Regional Economics

Under the *Resource Protection* alternative annual livestock sales of RMP/EIS area ranchers would be reduced 48 percent from \$739,493 to \$383,882 and remain at that level over the long term (Table 4-11). Ranch hired labor would decrease from 13.8 workyears to 9.6 workyears. The reductions in livestock sales and ranch hired labor are not expected to significantly impact the ESA.

Recreation Economics

Designating seven WSAs as wilderness is expected to increase visitor use in the RMP/EIS area by 5,900 visitor days. Annual recreation related expenditures would thus increase by \$22,538, an insignificant amount when viewed on a regional level.

Mineral Economics

The seven WSAs analyzed for designation under this alternative contain deposits of various metallic and

nonmetallic minerals, but reliable reserve estimates for these commodities and their locations are not known. Some of the deposits of gold, silver, and copper may prove economically viable. However, it is nearly impossible with existing information to estimate the impact that extraction of these and other mineral commodities would have on the local economy and work force.

Wilderness designation would prohibit mineral entry in the seven WSAs analyzed for designation. Also, development of mineral rights established prior to the designation date would be subject to increased regulation of access and reclamation in order to protect wilderness values. This may result in additional costs to mine operators and therefore discourage development.

The seven WSAs analyzed for designation are all classified as having a low potential for oil and gas development. A number of oil and gas leases have been established in the WSAs, but to date no production has occurred. Currently the lessees pay the government one dollar per acre per year for these oil and gas leases. One-half of the lease revenue is then returned to the state. Under the *Resource Protection* alternative 326,551 designated acres would be withdrawn from BLM's oil and gas leasing program. The loss of this acreage from the leasing program would result in a loss of potential lease revenues for both BLM and the state. Table 4-12 shows the acres which would be withdrawn from oil and gas leasing and the potential losses in lease revenue for BLM and the state. Under this alternative BLM and the state would each potentially lose \$163,276 per year. When compared to the total oil and gas lease collections BLM receives nationally, the loss of this revenue would be less than one percent.

Conclusion. The overall economic impact of the *Resource Protection* alternative on RMP/EIS ranches would be great. Ranches now operating at their authorized grazing preference would be required to reduce their herd sizes dramatically. Ranches now operating efficiently would have excess equipment and range improvements. Fixed costs on a per cow basis would increase and possibly many large- and medium-sized ranches would be forced out of business. Ranch values would decrease sharply, thus reducing a rancher's asset base and making it difficult to borrow money. In addition, net revenue would decrease, making it difficult for the ranch operation to pay family living expenses, replace equipment, and pay off existing debts. Although individual ranchers would suffer under this alternative, the economy of the ESA would not be significantly impacted.

Under the *Resource Protection* alternative the impacts to the minerals industry cannot be determined because of the lack of any specific development plans for the minerals present in each WSA. The withdrawal of seven WSAs from mineral entry would potentially cause long-term impacts to the ESA's economy.

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Impacts on Social Elements

Conclusion. Under the *Resource Protection* alternative ranchers would be negatively impacted due to losses in income and permit value. Those with a high dependency on BLM AUMs would be most affected. (See economics section.) The attitude of affected ranchers would be expected to be negative toward the BLM.

ENVIRONMENTAL PROTECTION ALTERNATIVE

Impacts on Rangeland Management

Livestock grazing would be phased out on 2,009,232 acres (30 perennial-ephemeral allotments and grazing leases and 18 ephemeral allotments) in the Lower Gila South RMP/EIS area over a five-year period. No ephemeral licenses would be issued on the 30 perennial-ephemeral allotments and leases or the 18 ephemeral allotments. The livestock industry would annually lose 60,524 AUMs of livestock forage and an undetermined amount of ephemeral forage. Livestock production would be reduced by more than 5,000 head of cattle.

Livestock operations would be adversely impacted if there were no more grazing allowed on public lands in this RMP/EIS area. Perennial-ephemeral allotments would be most significantly impacted since they are permitted to graze livestock throughout the year. Ephemeral allotments would also be adversely impacted but not to the same extent. These allotments do not consistently produce enough perennial forage to sustain a base herd on a yearlong basis and are not grazed on a regular basis from year to year.

Conclusion. All livestock grazing would be phased out in the Lower Gila South RMP/EIS area. Livestock operators would be adversely impacted by cancellation of all grazing privileges on public lands. The livestock industry would lose 60,524 AUMs of livestock forage annually.

Impacts on Vegetation

Eliminating livestock grazing on 2,009,232 acres would beneficially impact vegetation. Forage species grazed by livestock would be allowed to complete growth and reproduction. Vegetation would improve in vigor and production.

Complete yearlong rest of public lands would provide the opportunity for completion of growth and reproductive cycles. The initial rate of change would depend on current rangeland condition and trend, range site productivity, and plant vigor. The most significant increase would occur in high response areas with productive soils and higher rainfall. Low response areas would not improve in the short term, and more than 25 years might be needed for measurable improvement.

Rangeland condition on allotments with stable or upward apparent trends would improve as a result of eliminating grazing pressure on key forage species. Condition would stabilize once the potential of the various areas was reached. Condition on allotments with downward apparent trends would either stabilize or reverse from the yearlong rest. The rate of improvement would depend on plant vigor and climatic conditions. The lower a plant's vigor the slower its rate of recovery. Plant composition would also change in the long-term as condition improves, but to a small extent.

Conclusion. Eliminating livestock grazing under this alternative would be beneficial to the vegetation resources. Vegetation would improve in vigor and production.

Impacts on Wilderness Values

The *Environmental Protection* alternative would designate all 12 WSAs (621,931 acres) as wilderness. Wilderness designation would have short- and long-term beneficial impacts on wilderness and associated resource values by providing protection from most surface-disturbing activities. Withdrawal from mineral exploration and development, closure to motorized vehicles, and prohibition of new rights-of-way, disposal, or other land actions would preserve the natural character of extensive and relatively undisturbed Sonoran Desert basin and range landscapes. Opportunities for outstanding solitude and primitive recreation experiences in a natural setting would be significantly increased and protected for nonmotorized recreationists. Hiking, backpacking, camping, walk-in hunting, sightseeing, and nature study would be the primary activities benefited by wilderness.

Protecting the wilderness resource values would in turn benefit other related resource values such as wildlife, cultural, soils, vegetation, protected plants, scenic, and visual resources. Designating these lands as wilderness would provide long-term benefits by preserving land to permit the natural ecological processes to continue with little or no human interference. Two important wildlife habitat areas would be protected by wilderness: 373,850 acres of crucial desert bighorn habitat and 46,770 acres of crucial tortoise habitat. All 218,560 acres in the 12 WSAs likely to contain cultural resources would be maintained in an essentially undisturbed condition.

By eliminating soil disturbances associated with mineral operations and ORV use, fragile desert pavement soils would remain undisturbed. Also, wilderness designation would have long-term positive impacts on vegetation and populations of four protected plants by precluding development activities possibly detrimental to their habitats.

Scenic and visual resources would also be maintained. All areas would be designated as VRM Class I areas.

Development proposals in Class I areas are more restricted, and the objectives and management requirements permit little or no evident changes in the landscape.

Wilderness values (solitude and naturalness) could be preserved with overall positive impacts due to removing most human influences associated with livestock grazing.

Wilderness designation of the 12 areas would contribute to the diversity of the NWPS in Arizona. Additional opportunities for solitude and primitive recreation would become available for residents of five SMSAs. The geographic distribution of wilderness in Arizona would also be enhanced by the establishment of 12 wilderness areas in southwest Arizona, an area which presently has one National Park Service wilderness (Organ Pipe). The two ecosystems in the WSAs are already represented in the NWPS. While designation would not add new ecosystem types, it would greatly increase existing areas and acreage representing the American Desert Province by adding 96,221 acres of creosotebush-bursage ecosystem and 525,710 acres of paloverde-cactus shrub ecosystem.

Acquisition through land exchange of 6,396 acres of surface and mineral lands and 14,189 acres of mineral rights within or adjacent to the WSAs is recommended. Acquisition will facilitate wilderness management of the areas and enhance botanical, wildlife, and related multiple resource values. Acquisition of the above acreage would allow such parcels to be incorporated into the wilderness proposals.

Impacts on wilderness values from mining claim development, ORV use, cherrystem boundaries, and the presence of nonfederal surface/mineral and mineral inholdings might occur in some WSAs with the selection of the *Environmental Protection* alternative. The foremost manageability question is the possible conflict with development of valid mining claims that could occur in some WSAs.

Conclusion. Under the *Environmental Protection* alternative all 12 WSAs (621,931 acres) would be designated wilderness and included in the NWPS. There would be short- and long-term beneficial impacts on wilderness and associated resource values. Opportunities for solitude and primitive recreation would be maintained in a wide variety of natural landscapes. Substantial acreage of crucial desert bighorn sheep and desert tortoise habitat would be protected from surface disturbance. Scenic and visual resources would be preserved unimpaired by human activity. Cultural resources and protected plant habitats would be sustained. The diversity of the NWPS in Arizona would be enhanced by the designation of 12 wilderness areas in southwest Arizona.

The *Environmental Protection* alternative does not include any consideration of manageability. Some wilderness boundaries may require constant patrolling and artificial barriers to maintain wilderness values. Some damage to wilderness values might result from development of non-federal inholdings, motorized vehicle use, and development of valid mining claims.

Impacts on Land Uses

Conclusion. This alternative would not affect the routine lands program except that designation of 12 WSAs would preclude further land actions within these areas. Under this alternative a land tenure adjustment program would be developed but several proposed utility corridors would be impacted. Table 4-15 shows each proposed corridor, the wilderness area that would conflict with the corridor's designation, and the extent of the conflict (miles).

TABLE 4-15
UTILITY CORRIDOR AND DESIGNATED WILDERNESS AREA CONFLICTS
Bureau of Land Management, Phoenix District, Arizona

Proposed Corridor	WSAs	Miles of Conflict
1. I-10	2-125, New Water Mountains	4.5
2. El Paso	2-127, Little Horn Mountains	4.0
3. El Paso	2-128, Eagletail Mountains	15.0
4. El Paso	2-157, N. Maricopa Mountains	8.0
5. Liberty - Gila Bend	2-157, N. Maricopa Mountains	6.0
6. San Diego Interconnect	2-136, Face Mountain	5.5
7. San Diego Interconnect	2-138, Signal Mountain	6.0
8. Gila Bend - Santa Rosa	2-164, Butterfield Stage Memorial	6.0
9. Gila Bend - Santa Rosa	2-163, S. Maricopa Mountains	4.5

SOURCE: Phoenix District files

Impacts on Wildlife

Rangeland Management Issue

Mule Deer and Sonoran Pronghorn. Under the *Environmental Protection* alternative all existing forage competition between cattle and mule deer would be eliminated. Long-term improvement in browse condition could occur in those areas now heavily used by livestock. This would be a significant long-term benefit to mule deer. Similarly this alternative represents a significant long-term benefit to Sonoran pronghorn. Competition on Cameron allotment would be totally eliminated.

Desert Bighorn. Desert bighorn sheep exposure to livestock transmitted diseases would be eliminated under this alternative because all livestock grazing would be eliminated.

Desert Tortoise. Competition for annual and perennial forage between cattle and tortoise would be totally eliminated. This would be a significant long-term benefit.

Riparian Habitat. Some increase in cottonwood reproduction is possible if this alternative is implemented. Some decrease of mesquite reproduction is possible due to the elimination of cattle as a dispersion agent of mesquite seeds.

This alternative would result in significant improvement of Vekol Valley grassland (which provides habitat for six varieties of amphibians), and the dike system (which provides significant waterfowl habitat within Vekol Valley). Grass cover would increase significantly, providing increased habitat for amphibians, and shoreline vegetation

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would increase around the reservoirs (see Chapter 3, Waterfowl section), thus providing increased escape cover for waterfowl.

Some loss of waterfowl resting points and watering points for mule deer and small game would occur if livestock wells and reservoirs would not be maintained. As a result, long-term adverse impacts may occur to these species of wildlife. Short-term loss of some watering points for mule deer and small game would occur if wells were deactivated by ranchers.

Sonoran pronghorn would not be significantly affected by loss of livestock waters nor would bighorn sheep, since neither species use livestock waters to any great extent.

Some additional fencing would be needed to prevent livestock trespass but in many areas fencing could be removed, particularly between allotments; hence bighorn sheep would have fewer impediments to migration and gain a slight benefit.

Conclusion. Wildlife would significantly benefit under this alternative, because improvement of habitat would occur in the long term.

Wilderness Issue

Conclusion. Under the *Environmental Protection* alternative, 373,850 acres of crucial desert bighorn sheep habitat and 46,770 acres of crucial desert tortoise habitat would be protected by wilderness designation (Table 4-16). This represents a significant benefit for both species.

Land Tenure Issue

Conclusion. Land disposal and split mineral estate impacts would be same under the *Environmental Protection* alternative as under the *Proposed Action*. Under this alternative BLM would acquire 15,640 acres of riparian habitat. This acreage, in addition to existing BLM lands within the Gila River channel, comprises virtually all the valuable habitat (saltcedar, cattail, or mesquite thickets). This would provide the greatest degree of protection for riparian habitat of all the alternatives. Lands exchanged for desert bighorn sheep habitat management would remain the same as under the *Proposed Action*.

Utility Corridor Issue

Conclusion. Utility corridor impacts to wildlife would be the same as under the *Proposed Action*.

TABLE 4-16
ACRES OF HABITAT PROTECTED UNDER THE ENVIRONMENTAL PROTECTION ALTERNATIVE
Bureau of Land Management, Phoenix District, Arizona

WSAs	Crucial Desert Bighorn Sheep Habitat*	Crucial Desert Tortoise Habitat**
New Water Mountains	34,320	6,860
Little Horn Mountains West	12,660	0
Little Horn Mountains	59,680	0
Eagletail Mountains	70,200	0
East Clanton Hills	18,280	5,480
Face Mountain	0	0
Signal Mountain	7,860	980
Woolsey Peak	59,680	0
North Maricopa Mountains	39,280	7,050
South Maricopa Mountains	42,800	17,830
Butterfield Stage Memorial	6,310	2,870
Table Top Mountains	22,780	5,700
TOTAL	373,850	46,770

* Crucial desert bighorn sheep habitat: habitat necessary to maintain current bighorn populations. Population density varies.

** Crucial desert tortoise habitat: habitat with tortoise population densities of 50 tortoise per square mile or greater. All WSAs contain tortoise populations.

SOURCE: Phoenix District files

Impacts on Minerals and Energy

Conclusion. The *Environmental Protection* alternative would have a significant adverse impact on the minerals industry. Designating 12 WSAs as wilderness would withdraw 621,931 acres from mineral entry. This represents approximately 30 percent of the Lower Gila South RMP/EIS area that would be closed to any type of mineral exploration and development. This withdrawal would adversely affect 3,152 mining claims and 621,931 acres of oil and gas leases. Several areas of high mineral potential will be withdrawn. Since most minerals of any value lie within the mountain ranges, this alternative would essentially lock up the most significant areas where mining would most likely take place.

Acquisition of 47,198 acres would be beneficial because these areas would be open to mineral exploration and development. Acquiring 112,160 acres of state and private mineral estate would be beneficial, allowing BLM to control both surface and subsurface lands in this RMP/EIS area.

Impacts on Soils

The elimination of livestock would be beneficial in reducing soil erosion in and adjacent to the major drainageways and the Gila River. Any proposed soil-disturbing projects in the high soil-blowing and the severe-erosion drainageways would be evaluated on a case-by-case basis.

Conclusion. The elimination of livestock grazing would be beneficial to the fragile desert soils (desert pavement). Any proposed soil-disturbing projects in the fragile desert soil areas would be evaluated using site-specific environmental assessments on a case-by-case basis.

Impacts on Cultural Resources

Conclusion. Under the *Environmental Protection* alternative impacts to cultural resources for all issues except wilderness would be the same as the *Proposed Action*. Designating 12 WSAs (621,931 acres) as wilderness would result in added protection for more than twice as many acres with a high probability of containing cultural resources than under the *Proposed Action*. Approximately 36 percent of the analyzed WSA acres (218,560 acres) may contain cultural resources which would be beneficially affected (see Table 4-6). In addition the historic Butterfield Stage Route and additional acres in the Maricopa and Gila Bend Mountains with cultural/religious significance would be beneficially affected.

Impacts on Recreation

The cumulative impacts of the *Environmental Protection* alternative would close 621,931 acres, 366.50 miles of vehicle ways, and 7.35 miles of road to ORV use. In addition, there would be a shifting of the types of recreation use now occurring, including an estimated increase in recreation use of 5,200 visitor days/year.

Impacts on Economic Conditions

This section describes the economic impact of the *Environmental Protection* alternative on RMP/EIS area ranchers and the economy of the three-county economic study area. Impacts from expected changes in outdoor recreation use and oil and gas lease revenues will also be described.

Ranch Budgets

Small, Medium, and Large Ranches. Under the *Environmental Protection* alternative the authorized grazing preference on all ranches would be cancelled. RMP/EIS area ranchers are from 86 to 96 percent dependent on BLM forage. Because of the high dependency it is assumed that all RMP/EIS area ranchers would no longer be in business under this alternative.

Ranch Finance

Under the *Environmental Protection* alternative ranches in the EIS area would no longer be economic units, thus their value would be reduced to zero. The typical small rancher would lose \$72,000 in ranch value, the typical medium-size rancher would lose \$241,500, and the typical large-size rancher would lose \$894,000. Ranch operators who owe money on their ranch operation would be encumbered with no method to repay this debt other than to seek outside employment.

Regional Economics

The *Environmental Protection* alternative would eliminate all livestock sales and hired labor on all RMP/EIS area ranches. The 17 RMP/EIS area ranches' \$739,493 annual contribution to the ESA's total livestock sales would be lost. In addition, the 13.8 workyears of hired labor now used on the RMP/EIS area ranches would no longer be needed. The loss of the RMP/EIS area's ranch operations, however, would not significantly impact the economy of the ESA.

Recreation Economics

Designating 12 WSAs as wilderness under the *Environmental Protection* alternative is expected to increase visitor use in the RMP/EIS area by 5,900 visitor days. Annual recreation related expenditures would thus increase by \$19,864, an insignificant amount when viewed on a regional level.

Mineral Economics

The 12 WSAs analyzed for designation under this alternative contain deposits of various metallic and nonmetallic minerals, but reliable reserve estimates for these commodities and their locations are not known. Some of the deposits of gold, silver, and copper could prove economically viable. However, it is nearly impossible with existing information to estimate the impact that extraction of these and other mineral commodities would have on the local economy and work force.

Wilderness designation would prohibit mineral entry in the 12 WSAs analyzed for designation. Also, development of mineral rights established prior to the designation date would be subject to increased regulation of access and reclamation in order to protect wilderness values. This could result in additional costs to mine operators and therefore discourage development.

The 12 WSAs analyzed for designation are all classified as having a low potential for oil and gas development. A number of oil and gas leases have been established in the WSAs, but to date no production has occurred. Currently the lessees pay the government one dollar per acre per year for these oil and gas leases. One-half of the lease revenues is then returned to the state. Under the *Environmental Protection* alternative 621,931 designated acres would be withdrawn from BLM's oil and gas leasing program. The loss of this acreage from the leasing program would result in a loss of potential lease revenues for both BLM and the state. Table 4-12 shows the acres which would be withdrawn from oil and gas leasing and the potential losses in lease revenue for BLM and the state. Under this alternative BLM and the state would each potentially lose \$310,966. When compared to the total oil and gas lease collections BLM receives nationally, the loss of this revenue would be less than one percent.

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Conclusion. Under the *Environmental Protection* alternative individual ranchers in the RMP/EIS area would no longer be able to remain in business. In addition, ranch operators who owe money on their ranch operations would be encumbered with that debt with no ranch income available to repay that debt. The loss of the employment and earnings derived from RMP/EIS area ranch operations would not significantly impact the economy of the ESA.

Under this alternative economic impacts to the minerals industry cannot be determined because of the lack of any specific development plans for the minerals present in each WSA. The withdrawal of the 12 WSAs from mineral entry would potentially have long-term impacts to the ESA's economy.

Impacts on Social Elements

Conclusion. Under the *Environmental Protection* alternative ranchers in the short and long term would be negatively impacted due to losses in income and permit value. Ranchers with a high dependency on BLM AUMs would be severely affected due to the loss of all BLM AUMs. The attitude of affected ranchers would probably be extremely negative toward the BLM and this alternative.

MITIGATING MEASURES

The Management Guidance Common to All Alternatives section in Chapter 2 identifies by resource the measures that will be taken to mitigate possible impacts to the natural environment of the area. Management is committed to following the practices and procedures listed in an effort to protect the environment of the Lower Gila South RMP/EIS area.

The interdisciplinary team did not identify additional mitigating measures needed to avoid adverse impacts of the *Proposed Action* or the alternative..

UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts are the adverse impacts of the *Proposed Action* that cannot be mitigated. Such

impacts are often referred to as residual impacts. They are unavoidable because the *Proposed Action* directly conflicts with other values.

The unavoidable adverse impacts of the *Proposed Action* are as follows.

- Wilderness values may be lost on 431,540 acres as a result of mineral development, motorized vehicle use, and rights-of-way development.
- The *Proposed Action* would close 190,391 acres to mineral entry. No prospecting, exploration, or mining would be allowed, subject to valid existing rights. A total of 190,391 acres of oil and gas leases and 199 mining claims would be affected.
- Off-road vehicle use would be affected by the closure of 93.55 miles of vehicle ways, 6.0 miles of roads, and 190,391 acres of wilderness.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

This section identified the irreversible and irretrievable commitment of resources resulting from the *Proposed Action*. The term irreversible refers to what is incapable of being reversed; once something is started, it would continue. The term irretrievable means irrecoverable; once something is used, it cannot be replaced.

The *Proposed Action* proposes no irreversible or irretrievable commitment of resources other than the possible loss or damage of 431,540 acres of natural and wilderness values within those areas not designated wilderness.

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The short-term uses of man's environment will not change significantly from the present. In the long term, 147,090 acres of desert bighorn sheep and 10,520 acres of desert tortoise habitat will be protected within those areas designated wilderness under the *Proposed Action*. This will maintain or improve the habitat areas protected.